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ABSTRACT

This report focuses on an investigation of assumptions and principles underpinning training and assessment programs offered by a civil construction company in Australia. Section 1 is an introduction. To conceptualize the new workplace and consider the role of literacy and numeracy in it, Section 2 addresses changing work conditions, features of a learning organization, what might constitute workplace learning or knowledge production, and employee development. As a background to later analysis, section 3 explores Gee's (1996) concepts of 'Discourse/discourse' and addresses concepts of literacy. Section 4 introduces the research design. Section 5 focuses on case study methodology and raises issues related to design, use of interviews, and analysis of transcriptions. Section 6 focuses on the local history of competency-based training (CBT) and learning; addresses topics related to perceptions of CBT; and identifies understandings of literacy and training. Section 7 uses Watkins' (1998) "dimensions of a learning organization" to identify similar characteristics in this company and discusses discourses surrounding workplace literacy. Each topic is discussed in relation to the literature and supported quotations from transcriptions of interviews with employees at several levels. Section 8 is a conclusion. Section 9 draws implications for vocational education and training teachers and trainers who are collaborating with companies implementing industry training packages. (Contains 76 references.) (YLB)

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Acting Smart

An investigation of assumptions and principles which underpin training and assessment within one civil construction company

Jean Searle and Ann Kelly

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Many people have been involved in the development of this report. We wish to thank the management, trainers and workers employed by the civil construction company that became the focus of our study, and the members of the Advisory Committee of the Queensland Centre of ALNARC for their helpful advice during all stages of the project.

1 Introduction

In 1999, the Queensland Centre of the Adult Literacy and Numeracy Australian Research Consortium (ALNARC) engaged in a small study focused on the effects of the inclusion of literacy and numeracy competencies within the civil construction training package on the quality of learning and work outcomes. To effect this study, the Pacific Motorway project was chosen as the primary site for investigation. At that time, there were four major civil construction companies working on this project.

During the study, we found that one of these companies had taken the lead in implementing the civil construction training package on this site. This implementation was manifested in a number of ways. Firstly, a set of training matrices was developed to detail the competencies of each employee of the company. (See Appendix A for an example of these matrices.) This model of recording employees' skills was subsequently taken up by a number of the other companies involved in the motorway project. Secondly, this company developed and made available to both employees and subcontractors a range of assessment and training programs, some of which were based on the units and elements of competency within the civil construction training package. Thirdly, some of the topics that were addressed in the civil construction training package were included in the *Toolbox* posters that were developed for use by the company in short weekly in-service meetings. (See Appendix B for an example of the Explosive Power Tools toolbox poster which incorporated a number of elements in the civil construction training package). Fourthly, this company had been a major initiator in the production of training materials that were specific to motorway work. Finally, in talking with the staff involved in training and assessment in this company, a commitment to an increased level of implementation of the civil construction training package was evident.

For the reasons cited above and also because we wanted to maintain a measure of continuity in our research program, the Queensland Centre of ALNARC decided to invite relevant staff of this company to collaborate further in our research work which, in 2000 and early 2001, focused on:

- an investigation of the assumptions and principles which underpinned the training and assessment programs that were offered which were based on the civil construction training package;

- the elicitation and interpretation of understandings of literacy and numeracy within this cognitive framework; and
- the exemplification of these assumptions, principles and understandings in the training and assessment practices of the company.

Those staff of the company who were involved initially in discussions about the research program agreed to participate and to recommend other staff who might be interested, firstly, in contributing to the work of the Queensland centre and ultimately, to the Australian literacy and vocational educational research effort.

2 The changing nature of work and workplace learning

In the last few years there has been an emergence of a new body of literature about what is variously termed 'post-fordism', 'flexible production', 'lean production' or the 'New Work Order' (Gee 2000). Although this literature addresses the ideologies surrounding the changing world of work and the extent to which these views are being implemented, very few studies have focused on what this 'new capitalism' (Gee 2000) actually looks like in practice and the implications for workers. This, then, has become the focus for the Queensland ALNARC research project in which a case study approach was used to describe one model of what might be considered 'best practice' in the new workplace. According to Delbridge (2000: 6) best practice means working towards "...the integration of low buffered and tightly controlled technical systems with flexible, high commitment, team-based social systems that incorporate increased worker skill and involvement".

In order to conceptualise the new workplace and consider the role of literacy and numeracy within it, the following issues will be addressed: changing work conditions; the features of a learning organisation; what might constitute workplace learning or knowledge production; and issues in relation to employee development.

Changing work conditions

The move to globalisation and increased competitiveness among companies has resulted in greater demands being placed on enterprises to increase production with greater efficiency and reduced costs in terms of time, safety and potential litigation. New high performance workplaces are characterised by a commitment to continuous improvement and quality assurance principles, and the involvement of employees in decision-making processes relating to work. Continuous improvement often uses a cycle of "planning, executing, checking and refining operations to improve efficiencies" (Jackson 2000) all of which require extensive record keeping and checklists as part of the daily tasks of employees. Quality assurance measures include documenting compliance to standard operating procedures and with government and industry regulations, as well as monitoring performance and costs. Worker involvement may be through the introduction of work teams and/or participation in project meetings. Success is measured by the level of participation in decision making and the development of a culture of

commitment and trust among employees.

Gee (2000) argues that much of the work in this 'new workplace' is project based. This has given rise to a new type of worker, a 'portfolio worker'. Such a worker would develop a portfolio of skills within a particular market and it is assumed that as a consequence, the individual would be better able, either to become a skilled 'core worker' moving from project to project within one company, or migrating between companies across state (and in some cases, national) borders, building a career and joining an 'affinity group' of similar workers participating in shared sets of practices. One result of this change is that the ability to network becomes crucial as increasingly mobile workers communicate within and across affinity groups.

From the management perspective, one way of achieving a high performance workplace is through better management of the resources of the organisation, especially the human resources. Gee refers to this as a new form of capitalism which requires the establishment of a commitment by workers to design and redesign their own work practices, supervise each other and gain new skills. The management of this process is, therefore, critical to the development of a modern enterprise which is envisaged, in effect, as a learning organisation.

Features of a learning organisation

In the 'new workplace', as noted in the previous section, managers are required to develop collaborative workplace cultures and to take increased responsibility for the development of the individual employee, as well as the organisation as a whole. However, as work becomes increasingly project based, organisational decisions are more frequently being made by the project team and, therefore, the role of the manager becomes one of a team 'coach' or 'champion' providing leadership, and encouraging or empowering workers in order to develop or harness their knowledge, skills and creativity.

The characteristics of a learning organisation are summarised by Watkins (1998: 4) in the following table.

Table 1: Dimensions of the Learning Organization and Definitions

Learning Organization Dimension	Definition
Create continuous learning opportunities	Learning is designed into work so that people can learn on the job; opportunities are provided for ongoing education and growth; mistakes are treated as opportunities to learn.
Promote inquiry and dialogue	People gain productive reasoning skills to express their views, and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback, and experimentation.
Encourage collaboration and team learning	Work is designed to use groups to access different modes of thinking; groups are expected to learn together and work together; collaboration is valued by the culture and rewarded.
Establish systems to capture and share learning	Both high and low technology systems to share learning are created and integrated with work; access is provided; systems are maintained.
Empower people toward a collective vision	People are involved in setting, owning, and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn what they are held accountable for.
Connect the organization to its environment	People are helped to see the impact of their work on the entire enterprise; people scan the environment and use information to adjust work practices; the organization is linked to its internal and external community.
Leaders model and support learning	Leaders model, champion and support learning; leadership uses learning strategically for business results.

In summary, a 'learning organisation' is conceived as one in which the employees are continuously learning, while at the same time being active in scanning and responding to the environment (internal and external) in ways that are consistent with company values and ideologies.

One initiative which is consistent with the characteristics of a learning organisation, the Frontline Management Initiative (FMI), emerged from the report, *Enterprising Nation* (Karpin 1995). This program focuses on the development of good management practices *within* the organisation. Learning takes place within the organisation, often in terms of group learning, and management performance is directly related to the company objectives. The competency standards associated with FMI are not job specific but are stated in generic terms: Leading by Example; Leading, Coaching, Facilitating and Empowering Others; Creating Best Practice; and Creating an Innovative Culture (Mulcahy

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2000a) and are, therefore, not dissimilar to the characteristics outlined by Watkins above. How the Frontline Management Initiative impacts on employees within the company at the centre of this case study will be discussed in a later section in this report. In terms of the learning organisation, the FMI represents one technology of knowledge. That is, it is based on the assumption that the knowledge which a manager or organisation should have in practice can be codified, stated in advance and assessed. A second technology of knowledge being implemented in this company comes in the form of a training package, the ramifications of which are discussed in the next section.

Work learning or knowledge production

The two 'technologies of knowledge' mentioned above exemplify two types of workplace knowing. The first, the Frontline Management Initiative, is about what knowledge managers should *have*. The second, the implementation of training packages, is about recognising what workers *do*. Mulcahy (2000a) draws a distinction between knowledge as representation (applying previously stated competencies), and performative knowledge, which has more to do with 'knowing how'. Thus the technology of training packages may be seen as a reductionist view of learning which focuses on assessing worker performance against pre-set or 'designed' competencies. In addition, competencies are used as an administrative tool, a reporting mechanism, and an accountability measure for efficient management and achievement of company objectives.

Other understandings of how individuals think and learn in workplace settings are drawn from socio-cultural and situated cognition studies (Greeno 1997; Rogoff 1990). Such research demonstrates that learning cannot be disassociated from the social contexts in which the learning takes place. These may be seen as communities of practice (Lave & Wenger 1991) in which learning is inseparable from its practice and the social relations that are inherent in these practices. Further, as Billett (1999) points out, learning also depends on the personal dispositions or ontologies of individual workers and their idiosyncratic experiences and knowledge structures. So, individual workers may be considered as constructors of knowledge affected by, but fundamentally not part of, their environment, or alternatively, as 'enterprising selves' being responsive, adaptable and flexible, engaging in work learning as "changing participation in the culturally designed settings of everyday life" (Lave 1993: 5-6). However, studies by Hull (1997) and Darrah

(1996) indicate that some workplace practices are highly contested. For example, access to knowledge, learning, guidance and support is not always equitably distributed. Access may depend on compliance with company values or potential as a portfolio or 'core' project worker, and thus have implications for employee development.

Employee development

The work of Darrah (1997) and Lave and Wenger (1991) suggests that there is often a mismatch between institutional demands and communities of practice, although it is claimed that this tension is lessened if the required competencies are derived from workplace practices. However, as Darrah (1997) points out, the analysis of tasks into a set of competencies or skill requirements is problematic. Firstly, this is a reductionist approach which isolates those discrete skills deemed to be essential, but pays little attention to how these skills are seamlessly articulated into the work of a skilled worker. Secondly, there is an assumption that all workers require the same set of skills. Thus there is no concept of work teams being a collective of the individual skills and experiences brought to the team by its members. Thirdly, predetermined skill sets do not allow for the site or context specific demands of the job. Further, as Hull (1997) points out, a focus on individual performative skills and abilities often overlooks the important social or 'soft' skills so often required in team work and in communities of practice. Thus it may be argued that the concept of the portfolio worker may be flawed as it assumes that the transition from one workplace or site to another is unproblematic. Often "the person as an active, co-producer of the workplace is missing" (Darrah 1997: 252).

More recently Billett (2000), in reporting on research into co-participation at work, has addressed how 'affordances' to participate in work or training are constituted in the workplace. One of these affordances, Schultz (1997) argues, is the discourse surrounding employees, which has a bearing on what form workplace learning or training might take. For example, use of the terms 'training' or 'trainee' denotes that the purpose is to train the worker in company required specific skills for economic outcomes, rather than focus on other learning deeemed to be 'non-economic'. In such cases, employees are often referred to as 'resources' which need 'upgrading' or 'value adding' for the benefit of the company. So, as previously discussed, workplaces are not benign social institutions, but may be contested sites in which only the

more highly valued workers gain access to learning opportunities. How these values are ascribed is the subject of later sections in this report. First, however, concepts of literacy and concepts of discourses are introduced in order to contextualise the later discussion.

3 The discursive context of workplace learning

Mention has already been made of one of the outcomes of the discursive practices of workplaces, that of the positioning of the worker as a 'human resource'. In this section, firstly, Gee's (1996) concepts of Discourse/ discourse will be explored as a background to a later section of this report in which the discourses of training and literacy, apparent in interview transcripts, will be analysed. Secondly, some concepts of literacy are addressed, again in preparation for later discussion.

The concept of Discourses

This case study is one attempt to describe and make sense of one construction company's meaning systems and social practices with respect to training and requisite literacy and numeracy skills through an analysis of company policies, industry standards and interviews with company staff. This research involves not only describing how one aspect of the company's meaning system is generated and sustained, but also identifying the underpinning values, as it is through values that people have the capacity to adapt to, react to, or shape an environment. A useful starting point is Gee's (1996: 127) definition of Discourses as "ways of being in the world, or forms of life which integrate words, acts, values, beliefs, attitudes, and social identities" all of which are socially and historically constructed. Such Discourses involve many sub-Discourses made up of concrete objects (literally and metaphorically in the construction industry), for example, heavy machinery, scaffolding, site plans and signage, as well as abstract concepts of knowledge such as norms, values, beliefs. Another way of looking at the company, or workplace Discourse, is as if it were a club, with its own set of rules about who can or cannot be a member, and how members ought to behave. These rules may or may not involve a range of 'rites of passage' or tests which serve to preserve the culture of the club while at the same time ensuring membership. These "Discourses are not mastered by overt instruction…but by enculturation or 'apprenticeship' into social practices" (Gee 1990: 146–147). So, for employees, this would involve being inducted into the workplace or company philosophy, as well as complying with company expectations, attitudes and ideologies. Within the larger Discourse of the workplace there is also a range of discursive practices relating to the use of spoken and written language as texts, or

'discourses' — "connected stretches of language that make sense, like conversations, stories, reports, arguments, essays; discourse is part of 'Discourse'" (Gee 1990: 142).

The concept of literacy

One of the problems when investigating 'literacy' or 'numeracy' is that there are no universal definitions of the terms to which everyone subscribes. For politicians and many industry trainers, it is useful to conceive of literacy and numeracy as sets of discrete skills which can be readily quantified, and which, when mastered, would transfer to different contexts. This 'autonomous' model of literacy and numeracy privileges a view of literacy and numeracy as decontextualised basic skills or 'generic competencies'. As a result, 'literacy' and 'numeracy' are seen to be technical methods of achieving practical purposes. That is, they can be used to determine who needs what literacy and numeracy training, and how literacy or numeracy skills or competencies should be measured. However, this narrow view is contested by researchers (Street 1984, 1995; de Castell, Luke & Egan 1986; Hull 1991; Heath 1999) who argue that literacy and numeracy are social practices. Further, it is maintained that notions of literacy are tied up with questions of power and interest (Fairclough 1989) so certain forms of literate or numerate practice are deemed to be 'desirable skills' as they maintain the social order of the workplace, for example, filling in forms and following instructions. But there are also certain practices which maintain the 'social organisation' of the workplace, that is, they enable employees to work collaboratively. Other practices assist in the 'socialisation' of new employees in to the workplace (Gee 1990, 1996). Often such discursive practices are not recognised by supervisors and management. It is this tension between workplace skills and workplace practices which forms the core of the ALNARC research in Queensland.

In summary, the initial sections of this report have presented the context against which the findings will be analysed. The next two sections of this report introduce the research design and methodology adopted in our study. Section 5, specifically, focuses on case study methodology and raises issues in relation to the design and use of interviews, and the analysis of transcriptions.

4 Research design

The design for the project was based on a single case study form with data deriving from audio-taped interviews with key personnel in the construction company and a number of documents that had relevance to the aims of the study. All of the tape recordings were transcribed and copies of the transcriptions were made available to the interviewees with the invitation for them to provide further comments, confirmations or amendments. The data was analysed using interpretive analytic procedures from applied ethnomethodological, and in particular, conversational analytical and other qualitative research methods.

5 Research methodology

The methodology that was employed in the project had the following components:

- The continuing examination, throughout the life of the project, of the literature relating to:
  - the changing nature of the workplace and workplace
  - learning,
  - the learning organisation,
  - the discursive context of workplace learning, and
  - the collection and interpretation of interview data;
- the mapping of the company structure;
- the conduct of open-ended interviews with staff employed across a range of levels within the company;
- the collection of documentation that was of relevance to the aims of the study, e.g. company training plans, training matrices; and
- the synthesis and analysis of the resultant data.

Case study methodology

Feagin, Orum and Sjoberg (1991) have suggested that a case study approach is an appropriate methodology when detailed, in-depth investigation is required. In the case of our investigation of the assumptions underpinning training within the selected construction company, this was our purpose, although we were somewhat restricted by the project nature of work in the construction industry. Case study methodology was also consistent with an ethnomethodological approach because it is based on a process of induction. That is, the data is the initial focus of the study and interpretations are derived from this data (Funnell 1996). This approach contrasts with an hypothesis-driven one where a set of propositions are drawn up prior to the implementation of the study and these are then tested. In reality, however, researchers are not tabula rasas at the commencement of a study, and during the study, there is a constant movement between the emergent findings and the literature that is informing the work as it progresses. As with other qualitative methods, there was a concern to ensure a measure of validity of the research process. Denzin (1984) identified four types of triangulation aimed at ensuring studies are valid: data source triangulation where data is examined across a number of different sources; investigator triangulation where a number of different investigators

examine and interpret the same data; theory triangulation where the investigators use different theories to interpret the same findings; and methodological triangulation where a range of methods is used. In this study, both interview and document data provided a form of data source triangulation, although this was somewhat limited in scope. The two authors of the study were the primary interpreters of the data, although two other Queensland ALNARC researchers and the members of the Queensland ALNARC Centre advisory committee also offered valuable comments. The perspectives that these different actors brought to this interpretive project were not always the same, and thus a measure of theory triangulation was adopted. The final type of triangulation that Denzin proposed was not used in the study.

Interviewing as a research method

The approach that is taken to interviewing in our study is a social constructivist one, whereby parties to the interaction are understood to *actively* (Holstein & Gubrium 1995) and cooperatively constitute the meaning that ensues. Thus, while we were interested in the content that resulted from the interviews, we were also interested in the ways that were used by both parties to interactively produce that content. Our approach has been strongly influenced by ethnomethodology (Baker 1983 1997; Silverman 1994, 1997; Silverman & Gubrium 1994; Watson 1983; Watson & Weinberg 1982) but resonates with feminist (De Vault 1990; Hardy 1987; Oakley, Smith 1990) and postmodernist (Kvale 1996) scholarship . Our perspective on the *active* interviewee is encapsulated well in the following quotation:

> *Construed as active, the subject behind the respondent not only holds facts and details of experience but, in the very process of offering them up for response, constructively adds to, takes away from, and transforms them.*
>
> (Holstein & Gubrium 1995, p. 8)

We believe that decisions regarding these additions, subtractions and transformations and, we would claim, *omissions* (Agger 1991) are based on the meaning that is both brought to the interview situation and developed as the interview evolves. Further, we believe there is a moral dimension to such decisions (Baker 1982; Jayyusi 1991; Silverman 1997).

We also believe that each interview situation is inherently different. Castleton (1997) provides a list of features that are crucial in pointing out why this is inevitable. These are the interviewees' "background(s),

location(s), designation(s)" and the "different perception(s) they have of the role of the interviewer as researcher" (p. 199). Pomerantz and Zemel (in press) suggest additional features that are relevant. They claim, firstly, the interviewees' understandings of the reason why they have been invited to participate in the study, secondly, the perspective that they bring to the interaction, and finally, the possible topics that will be addressed, are also pertinent. As a result of consideration of these claims, the list of *possible* topics that were developed for each group of interviewees varied, as did the organisational structure and content of individual interviews. (A sample of the interview topics that were suggested might serve as guides to the interviews can be found in Appendix C).

In opting for the development of interview topics and making them available to the interviewees prior to the interview, we followed a position which could be located between a totally open approach and a semi-structured one. Denzin (1970) proffers three benefits that derive from the use of an open-ended approach to interviewing. These are that the interviewees' "unique ways of defining the world" (p. 125) are captured; secondly, no set order of questions is used; and thirdly, there is an opportunity for interviewees to bring their own topics to the interviewing situation. However, a number of authors have questioned Denzin's assumptions. For example, Hammersley and Atkinson (1983) point out that if no topical guidance is given, if fixed time frames for interviews are operating, and if only one interview with each interviewee is possible, then the use of open-ended questions within a very limited time frame may not be the most economical use of this time. We would support Hammersley and Atkinson's point, and would argue further that, while it may be that some people do have "unique ways of defining the world", most people live in social groups which are characterised by particular Discursive (Gee 1990, 1996)) features which constrain uniqueness. We concur, though, with Denzin's second point about there being no normative order of questioning. However, in designing the list of possible topics, we found that some order was logical. For this reason, we offered the topics as possibilities only. With respect to Denzin's third claim, surely it would be expected that the participants in small-scale interview situations would be encouraged to bring their own topics to the interaction. While we developed a set of topics that we hoped might be perceived by the potential interviewees as relevant and comprehensive, we expected that they would contribute their own topics and that these would be developed as the interview evolved.

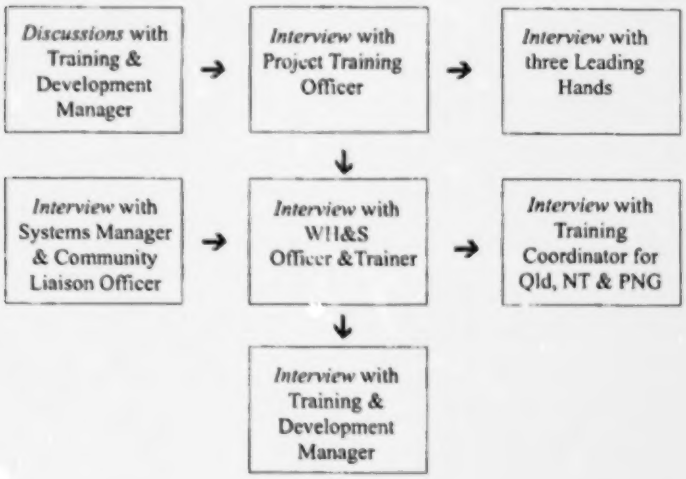
In addition to the interviewees having a particular perception of the interviewer, we see that interviewers themselves have an important role in the enactment of an active interviewing process. Not only might they come to the interaction equipped with a list of topics or questions to be posed, but throughout the interaction they will draw on their own experiences to seek clarifications, explanations, further details with respect to what the interviewees have said and, in some cases, they may contribute to the understandings that are developed throughout the interview. In conducting the interviews, Kvale (1996) suggests that it is imperative that the atmosphere in which the interview takes place is conducive to allowing the interviewees to feel sufficiently free to express their views. We would add the rider to this that the constraints discussed above should also be recognised. Kvale recognises that this involves a "delicate balance" between the provision of "cognitive knowledge" and "ethical aspects of emotional human interaction" (p. 125). Both extremes of a neutral interviewer seeking facts, and a therapist solving emotional problems, are to be avoided in this model. A characteristic of the atmosphere that was generated in most interviews was the presence of laughter which accompanied the expression of views. This phenomenon might indicate that in some interviews, anyway, this balance was achieved[1].

Selecting the interviewees

While we had worked with the focal company in a small way in our previous research study, the impetus for this study did not come from the company. Rather, it was our decision, based on a number of factors which have been described earlier in the report, to seek to engage in further research work with the company. As a result, the movement of the project was sometimes slow because interviewees were selected using a *snowball* method. That is, we began by canvassing the viability of the project with a key trainer in the company, the Training and Development (Operations) Manager, who was responsible for initiating and implementing training, not only in the company, but also within the civil construction industry at national, state and local levels. This trainer then recommended that we speak with another trainer who had the primary role of implementing the training and assessment programs on a particular project, the busways site. From this beginning, the process of negotiating and interviewing that is shown in Figure 1 evolved.

We are conscious that the process of recommendation employed has flaws, in terms of biasing the type of data that has resulted. That is,

Figure 1: Process of negotiating and conducting interviews


Discussions with Training & Development Manager
Interview with Project Training Officer
Interview with three Leading Hands
Interview with Systems Manager & Community Liaison Officer
Interview with WH&S Officer & Trainer
Interview with Training Coordinator for Qld, NT & PNG
Interview with Training & Development Manager

because several interviewees were requested to participate in the study by their supervisors or by trainers, they may have expressed views that were complimentary to company polices and practices, rather than adopting a more balanced perspective on the various topics that were addressed. It is difficult to see how this selection process could have been avoided, though, because of the project nature of the industry. Further, in our interviewing and in our analysis, we did attempt to draw out views that were oppositional to those that have been normalised within the training literature, and which appeared to be normalised within the culture of the company.

We were also keen to interview employees across the spectrum of the company hierarchy that seemed relevant to our research interests. To some extent, we were successful in this aspect of the research (see Figure 1). In total, we conducted eight interviews. These were with three leading hands, two trainers, one much more experienced than the other, a systems manager with an interest in training, a company training coordinator, and a training and development manager. All the interviews were conducted on-site and extended over a time period of between 45 minutes and an hour. The leading hands came from their specific workplace locations to a common demountable office, but all of the other respondents were interviewed in their personal offices. Except in the case of the two managers, the interviews were conducted individually at these sites.

Transforming the audio-tapes into transcripts

All of the audio-recordings were transcribed into Microsoft Word files. Although we could have listened to the recordings and selected specific sections that we thought were particularly relevant for our purpose, we opted for the transcription of all of the recordings, firstly, so that both authors had access to the same transcripts for analysis, and secondly, so that in the next stage of analysis we could use features of Word, to collate similar themes and lexis. Heritage has summarised the advantages of transcripts for analytical work in the following way:

> *The use of recorded data is an essential corrective to the limitations of intuition and recollection. In enabling repeated and detailed examination of the events of interaction, the use of recordings extends the range and precision of the observations which can be made. It permits other researchers to have direct access to the data about which claims are being made, thus making analysis subject to detailed public scrutiny and helping to minimise the influence of personal preconceptions or analytical biases. Finally, it may be noted that because the data are* [sic] *available in 'raw' form, they can be re-used in a variety of investigations and can be re-examined in the context of new findings*
>
> (Heritage 1984, p. 238)

The typing process was enacted in two, and sometimes three, stages. Initially, the recordings were typed verbatim with hesitations, false starts and pauses being noted. These were then matched against the recordings and amendments were made. The second transcript copies were generally *cleaned up* to some extent. In deciding how fine-grained this second copy would be, we were influenced by Kvale's (1996) view that the audience for the transcripts should determine the detail to be included. A further determining guide for this decision that he suggests is "to imagine how interviewees themselves would have wanted to formulate their statements in writing" (p. 170). As a result, we developed two transcripts of each interview, an original which contained repetitions, emphases in intonation, laughter, sighing, and so on, and a second transcript that approximated a more formal written style. This second transcript was given to the interviewees. In many cases, this transcript was the first that they had encountered which was based on their own expressions and, generally, the interviewees were appalled at their perceived inarticulateness.

Analysing the transcripts

Rubin and Rubin (1995) suggest that it is important to document how transcripts are analysed. The following steps show how this analysis was done.

1. All the transcripts were read and a number of themes that were recurrent and which reflected our research interests were identified.
2. We then combed the transcripts to find text that focused on these themes and collated these text fragments into separate tables. Transcript lines were noted in a separate column as was the position of the respondent.
3. Subsequently these collated text fragments were annotated (see Table 2 below).
4. An initial analysis of the findings followed.
5. The next step involved reading the literature relating to organisational training and the attributes characterising a learning organisation. A second analysis of the data resulted from this step.

Table 2: Extract from a section of a table used to thematise transcripts

Staff Postion	Lines	Text	Annotations
WHS Trainer	1 2 3 4 5 6 7 8 9 10	we're *teaching* them at all times how to, how to, how to address the work site they're working in as to what hazards and risks are there and it is their responsibility to look after their own safety down there where as originally they thought oh, well, we look after them but the thing is now they're more independent.	Notion of "us" and "them" but this is breaking down in terms of WH & S "We're teaching" them about WH & S in a general way but they are the ones who must respond at the local level

One of the critical tools we have employed to analyse our data is that of membership categorisation. In his doctoral dissertation and in later articles, Sacks (1967, 1972) nominated a number of components of membership categorisation which were further developed by Baker (1982, 1997), Drew (1978), Eglin and Hester, (1992), Hester and Eglin (1997a, 1997b), Jayyusi (1984, 1991), and Watson (1983). Jayyusi (1984) describes the ways that features of a text are related to categories as follows:

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a) The constitutive trait (of categorisation) carries with it a cluster of related possible actions, traits, preferences, haunts, appearances, places, times, etc. It is the nucleus of other categorisation-tied or relevant features which all together provide procedures for situated inferences to a host of other issues regarding category incumbents in their settinged availability. Thus, the use of categorisations is not only descriptive of persons, but it is through and through an *ascriptive* matter, and

b) This cluster is itself embedded in the logico-grammatical relations between concepts. (pp. 26–27)

Thus, the ways that membership categories are used will depend on the particular environments of that usage. For example, in the interviews that we conducted, there was an understanding that the term "training" had replaced the broader one of "education" and that there was a normative dimension to this replacement. This normativity could be read off Industry Training Advisory Board documents, such as training packages, and in staff development presentations, such as those based on Workplace Trainer and Assessor IV and Frontline Management courses. More recently, however, the concept of "learning" had been promoted as a preferred alternative to that of "training" and with this promotion came a rationale based on a number of principles, such as the need to ensure flexibility of course components and assessment forms. These "predicates" (Watson 1983) of training and learning are replete within the transcript data.

In analysing the data, not only did we examine the corpus of interview transcripts for common themes and recurring expressions, but we also looked for examples that deviated from this commonality. Clayman and Maynard (1995) define the term "deviance" as "usually referenc(ing) events which seem to be inconsistent with an initial analytical formulation of how things work" (p. 7). They further suggest that

> *investigators aggressively search for such cases because serious consideration of them tends to enrich and deepen an initial analysis by making it account for both the regular patterns of talk and singular instances that run off differently.*
>
> (Clayman and Maynard 1995, p. 7)

The understandings that are outlined above were progressively realised as we continuously re-examined the data and moved from one interview to the next.

6 Project findings and initial analysis of data

This section is divided into three parts. The first part focuses on the local history of competency-based training (CBT) and learning that was described in most detail by the Manager of Training & Development [Operations]. We then address several topics in relation to perceptions of CBT, and finally we identify some understandings of literacy and training.

Local history of Competency Based Training

In the late 1980s, the then Labor government struck a series of 'accords' with the unions for wages restraint as part of an overarching restructure of industry which included a reduction in the number of individual trades, a linking of wages to awards or qualifications, and eventually the reform of the overall training agenda (Kell 1998). One of the informants in this ALNARC case study was a key player in these events, and he recalls the situation as follows.

> *Competencies started as an industrial relations instrument, not a learning instrument. I was part of the original team and have been involved ever since. And we really were grappling with the concept of how you pay for skill used... And in the late eighties when industrial relations were attached to CPI rises...they were breaking away from that and Justice Lidite was, in fact, steering that design but there was nothing around. So they latched on to competencies which, of course, had a bit of an origin in the UK...*
>
> *In the early days, it was the National Training Board, not ANTA, and they really didn't even have an idea of what they'd* [competencies] *look like. So we were building it as we went. But the philosophy that we followed was that we wanted to add a bit of science to what was already quite a good process and that was that the people in the industry, foremen and skilled operators, and anybody who had been in the industry for any time, really could tell if a person was skilled and knowledgeable in particular tasks. And so all we were actually trying to do was, I guess, to find ways of explaining that and hoping to measure and standardise it. On that basis then you'd have a*

> *structure and you'd be able to reward (people within) that structure and we've have a set of standards matrix across the organisation. That's how it started.*
>
> (Manager of Training & Development [Operations])

With this background, it is perhaps not surprising that this key person became a 'champion' for learning within his industry. He had the vision to see the benefits to the industry as a whole if there was collaboration on major projects, development of a common pool of skilled labour and some common training objectives. The uniqueness of this arrangement is reflected in the following quote which is taken from the transcript of his interview.

> *I think one of the things that you might have observed in going out to that area* [Pacific Motorway construction-sites] *is that this is probably one of the first times, maybe since the Snowy, that a whole group of competing companies have actually been working together and have, in fact, had a fair interchange of information and systems, and so forth in terms of the training. And that's sort of enhanced, I guess, a realisation for me, at least, and for many others who now come to view the labour pool as a common pool.*

This manager subsequently organised for training coordinators from all the major construction companies to meet regularly to discuss training issues and resources. One training coordinator commented on the benefits of this approach.

> *The support in the Brisbane area again was always there from people like...*[the Manager of Training & Development (Operations)] *and also the other training coordinators from the other major contractors. We have training meetings once a month which you probably will know and were all trialing different things. And one of the things we did say was that when we found something that worked, we'd all take it on board and that makes things a great deal easier. And it's going to make it easier for the workforce who then travel from us to other major contractors in the future.*

One of the major outcomes from these group meetings was the coordination of training for the purposes of developing a core of skilled workers. Reference has already been made to the use of a training plan or skills matrix (see Appendix A) and further issues surrounding the concept of 'portfolio' workers will be discussed later. A second outcome from the group meetings was a decision not to use the existing industry training

resources but to commission a private consultant, Performance Training Pty Ltd, to produce training materials and resources specifically for the larger civil construction companies involved in the motorway project group (Kelly & Searle 2000).

Issues in relation to training and the relationships among terms such as 'training', 'education' and 'learning' will be taken up later, but it is useful at this point to consider some of the changes that have taken place within the industry in order to contextualise this case study of one company. For example, when interviewed, one of the leading hands identified some of the changes he had noticed within the industry over the twenty-five years he had been employed.

> *Over the years there's been a lot of changes. Um as in for training. Years ago there was never any training. You'd have to do it yourself. Um plus the safety standards too. They've come a long way... now there's a lot more training, um for everybody, um to give them the various tickets in um various jobs, um where years ago there was like I said there was just absolutely nothing.*

This Leading Hand went on to say that the civil construction industry appeared to offer much more training than other branches of construction but then ["smaller companies aren't interested in paying you to go into the training thing"] (Leading Hand). So, what is it about this company that sets it apart from others within the industry? According to the Systems Manager/Community Liaison Officer it is commitment and vision.

> [This company] *for instance has a greater ability as a larger organisation to look at long term outcomes and I think that's why we HAVE TO BE a leader in the industry in bringing things like training about because we're in a better position than others like subcontractors, to actually look at this. So we take a longer term vision rather than a shorter term vision. Right? So our investments tend to be based around that.*

It is against this background that assumptions and principles which underpin training and assessment within this company are described.

Perceptions of Competency Based Training

This section focuses on the topics of:

1. The relationships between the terms "training", "education", "industry" and "learning".
2. The inherent formal valuing of the skills of workers as the

primary goal of establishing a CBT framework.

3. The evolving implementation of the CBT framework that was being put in place by the company.
4. The criticality of direct links between training and outcomes.
5. The need for support for training by members of the upper echelon of the company emerged from a question by the interviewer requesting information about the history of CBT and training packages within the company.

Each of these topics is discussed briefly below and excerpts from the transcript of the interviews are reproduced to show how these topics were addressed by the interviewees.

1 The relationships between the terms "training", "education", "industry" and "learning"

The interviewee who showed the most understanding of competency based training was the Manager of Training & Development [Operations]. He differentiated between the early purpose of regulating rates of pay "for skill used" within and across industries with the one that has evolved — that of a "learning instrument". This perspective correlates with the well-documented tour sponsored by the Australian Council of Trade Unions (1986) to the United Kingdom and a number of European countries to examine how competency-based approaches to solve industrial problems were being addressed. He also differentiated between the supporters and opponents of CBT initiative. On the one hand, industry representatives such as himself were aligned with unions and members of the National Training Board, and on the other, were ranged up "the academics" and others "entrenched" educationalists. The following quotation from the transcript of our interview with him exemplifies his position.

> *The people who opposed it, of course, were the academics and all of those in entrenched learning systems of the time. The argument by Pennington and others was that we were so marginalising learning as opposed to training that, you know, it was going to destroy the whole system. We were only training people for absolutely key specific things, rather than educating people for the whole of life and all those sorts of things. We were actually creating these very, very narrow learning skill development areas. So that was going to destroy the fabric of it all.*

His use of "of course" early in the statement is noticeable. It is also ambiguous. It is uncertain whether he means that those who were oppositional were groups that one would expect to take such a position or whether it is common knowledge that these two groups took this stance. His use of "entrenched" to describe the group whom he aligns with the academics in the oppositional space serves to characterise them as reactionary towards change, a change that is implied is for the better. This notion of "entrenchment" is further strengthened by his placement of the group within the "learning system", that is, within institutional frameworks that are formal, rule-governed, bureaucratic and thus resistant to change. To substantiate his memory of this period, he calls up the name of the head of the national Vice-Chancellor's committee, Professor David Pennington, who was vocal in his criticism of CBT.

In this statement, he also sets in opposition the concepts of "learning"/ "educating" and "training" in his claim that the critics warned that the adoption of a narrow CBT approach to all educational spheres would fail to address broader learning needs, and indeed, destroy the existing institutional structures. That the contrast pairing of "training" and "education" is prevalent within the CBT discourse is evidenced by the plethora of articles that have been written over the past decade, and which attempt to tease out the parameters of each concept. A recent example is one by Dianne Mulcahy titled "Brokering the boundaries of industry and education: cultures of competency-based training" (2000b) where she suggests that vocational education and training "practitioners", who recognise this conundrum, "broker" the boundaries between the concepts of "education" and "industry" and "extend CBT beyond these boundaries". Thus, in her titling of the article, she accepts the binary categories of "education" and "industry" but does not similarly set up oppositions between competency-based *education* and competency-based *training*. A somewhat different form of accommodation is evident in the titling of the post-compulsory sector, vocational education *and* training, which has primary responsibility for the provision of worker competence. Here, *education* and *training* are collocated through the use of the connector "and". In this way, they are conceptualised as different objects. It is a common understanding that the VET literature has historically been, and is still replete with, the pairings of forms of the terms, "education", "training", "learning", "teaching".

2 The inherent formal valuing of the skills of workers as the primary goal of establishing a CBT framework

Within the narrative of the Manager of Training & Development (Operations) there is a position taken that the development of competency standards was based on the skilled, practical work of employees. In contrasting the learning in the construction industry, he suggested that it is "probably different from a lot of other industries. We actually learn a lot of our skills and even the underlying knowledge out on the job". He described the process of the development of a CBT framework for the construction industry in the following manner.

> *The philosophy that we followed was that we wanted to add a bit of science to what was already quite a good process and that was that the people in the industry, foremen and skilled operators, and anybody who had been in the industry for any time, really could tell if a person was skilled and knowledgeable in particular tasks. And so all we were actually trying to do was, I guess, to find ways of explaining that and hoping to measure and standardise it. On that basis then you'd have a structure and you'd be able to reward (people within) that structure and we'd have a set of standards matrices* [sic] *across the organisation. That's how it started.*

Earlier in his reflection on his involvement in the establishment of a CBT program, this manager is definite about his pro-active role in the development of a set of standards for the construction industry. As a result, it is no surprise to see his use of the encompassing pronoun 'we' when detailing the early stages of this process. He describes the problem inherent in this process as "trying to find ways of explaining that" (how people could determine whether workers were 'skilled and knowledgeable in particular tasks') "and hoping to measure and standardise it". The Project Training Manager reiterated this basis for the implementation of training packages in describing how an external assessor determined the skill level of those staff members who were being trained to assess their on-site colleagues. Following is the relevant segment of his transcript.

> *Most of our assessors are our foremen, superintendents, leading hands. So they've got that experience in the job already. One of the things that we did was actually go through their experience, got them to come in with their CVs, got Construction Training Qld, which is the ITAB for the civil industry, got one of their assessors, Jim O'Farrell to come out and Jim actually sat down with the guys over a full day or whatever, went through their whole work history,*

> *went through a whole range of questions, experience based questions, skill based questions to see what level they were. In most cases they were Certificate 3 with trade outcomes. So that was giving them the recognition that they did have the skill. I think that that's important: giving them that recognition. I mean, the guys recognise that on-site themselves but to give them that recognition you're formalising your training... So once we did that then we put them through a series of assessor training, assessor courses that we run ourselves.*

Again we see the emphasis on the importance of recognising people's everyday skills, and using the CBT framework to both credit these towards a certificate and use them as a base from which to identify gaps to be filled. In the excerpt from the interview with the company Training Coordinator [Qld, NT, PNG] there is also a reference to the recognition of everyday work practices:

> *It's one of the things we developed because all this competency based training, it's on the job, it's what you do for a job in your everyday work. Now when the training packages came in, a lot of people said, "Oh I don't know. How much more training are we going to have to do for this. We'll be in a classroom all day!" We've said, "Well no you don't, because in all of the elements of that competency, nine times out of ten you're actually doing it every day you're at work. It's only getting the assessment that you can do.*

In another section of the interview the company trainer elaborated on how *evidence maps* (See Appendix D) matched the practices that were a regular part of the daily activities of workers against the competency statements. This elaboration is shown below.

> *We've actually put together an evidence map. So we've taken the units of the competency and said, 'Okay in our everyday work these things that we do on the job directly relate to the units within the competency'...*

Using the example of the unit of competency, 'Conducts Bulk Material Truck Operations' the Training Coordinator [Qld, NT, PNG] continued:

> *Now what we've said is, 'There's the competency standard for bulk truck ops, the description is there. Now here's all the elements of the competency'* [all the things that they have to show that they can do to get the tick in the box for that]. *Now in our everyday work we do all of these things... what we've done for these people is their*

supervisors, superintendents have sat with them and said, 'These are the competencies to achieve your Certificate 2 that we think are appropriate for the job where they're at' — different sites. Even though a coal mine is a coal mine, sometimes they have different things that they do on-site. In here you've got the seven core units [points to a section on the map]. *So they all do that. Then as we start to get into these, the electives, again it will depend on what they do on-site. Some sites won't have a dozer. Some won't have a grader — that sort of thing. But we set out a training plan for them. It basically sets out which competencies we want them to do, how they're going to do those competencies and what training activities are in there, the time frame for each of them, um... the time frame is ongoing because they're doing it* ***EVERY DAY*** [our emphasis].

3 The evolving implementation of the CBT framework that was being put into practice by the company

While the Manager Training & Development (Operations) provided details about the development of the civil construction standards on a national level, the busways Project Training Officer traced *his* involvement in the implementation of the training reform agenda within the company.

I first worked with this company in New South Wales on the first construction workplace reform agenda project... at a correctional centre. And because of the emphasis on training from that job as a model project that's where I was introduced to this workplace training agenda — where it all began ('91)...I went to...the Northern Territory and that's where I started to work with L...a fair bit and having a go at implementing the competency standards as they were, without training packages in those days... So that's really where the training per se really took off. We then moved down to the G...Motorway in ninety-five, ninety-six. Again we trialed different methods of implementing training which were really aligned with the competency standards again and actually for the first time issued people with the competency standards from Construction Training Australia... We were trying to do one of two things: find out how we can involve training and not impost on the job too much and also gain the trust of management and supervisory people that we were doing training that was worthwhile. There were limited resources, very limited resources around in those days for use. Also, if you look back, we made a few

> *mistakes by forcing people into a classroom environment and actually speaking about things and talking about things that they already knew... 'Cause we brought them in crew by crew rather than the proper way of doing it — of a needs analysis and then training to gaps. In those days we were really just trying to get it all up and running. There we'd just progressed quite slowly in getting it up and running until the P Motorway packages came along... What we found out in K. . .* {the Northern Territory]*...and certainly when we came to the G...Motorway when the project was to be set up, originally there was no scope for a training person, a training officer or a training coordinator as some of them are called . Our project manager had seen the benefit of what happened at B...with the training. Very hard to record. We didn't have any results or on paper or anything to say that it worked but it was just the mood of the place I suppose and the successfulness of the project and he wanted a training person on-site. So he created a budget. I think then it was then we realised that to do training properly on a project we really needed someone whose role it was to coordinate it all.*

In the first couple of sentences of this excerpt we see a confirmation that this company was indeed in the forefront of implementing the national training initiative. The choice of vocabulary that the Project Training Officer uses to describe this initiative, "the workplace reform agenda project" and the "workplace training agenda", resonates with that used by those who were instrumental in promoting CBT in industry. He also differentiates between the time periods when competency standards were available and more recently, when they were the centrepiece for industry training packages. Further, he is knowledgeable about the national body's (Construction Training Australia) role in developing the construction industry standards.

4 The criticality of direct links between training and outcomes

The Project Training Officer also draws attention to the two recurrent problems of (a) integrating training into work practices while simultaneously ensuring the company remain productive and (b) gaining the support for training from upper management. The importance of seeing a tangible benefit as a result of training programs is a common theme across the interview transcripts. Below is a sample of the ways that this emphasis was couched in the statements by the interviewees.

We, in our industry can't and probably never would just do training for the sake of training. There's got to be some measurable outcome for us... It's always going to be the case on the ground that there'd be a preference to use normal down-time to carry out training. Again, that's being sensible on the business front... But there are some differences though, because some people would've never allocated any time for training whereas now they're really going to. And they're going to do it not because they're told. They're going to do it because they can see a benefit. But it's still got to be a balanced benefit.

(Systems Engineer/ CLO)

It's [having RTO status] *also very powerful in terms of our commercial advantage that we can do that and even to the extent now that it makes a difference in tendering. That's very important.*

(Manager Training & Development [Operations])

All of those materials that are developed, all the training that you do is to achieve an outcome, to be able to do whatever it is, but do it better... Well they are, and you know, cost. Every project you bring in, every tender that you go for you're putting in there a certain item of cost and every time people are asking you to reduce the cost. You can't put a person out there [not] *working* [all the time]. *He has to be out there working to 100% of his capacity because the flexibility to be able to have him out there not doing that isn't there any more and its getting tighter and tighter. So yeah, you have to have a workforce that can do what they do the minute they get there, and I suppose all the training that we're doing is trying to make them better for our next job.*

(Training Coordinator, Qld, NT, PNG)

The company's base job is to make money, you know, and to do that you've gotta have an experienced workforce. So to do that you gotta have guys that have got the experience.... Even the little tasks all get a WAB [Workplace Activity Briefing] *because, you know, if you do a little task over and over, unless you're doing it efficiently, you're going to be costing money so you may as well have a WAB and get everyone's experience on how you're going to do the job the most efficient way so you save money, don't hurt anyone. All those in one, you know.*

(Leading Hand)

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5 The need for support for training by members of the upper echelon of the company

In several interviews, the linkages between the need for training to result in visible outcomes, and the company support for this training, were made explicit. Following are two example of this nexus which is taken from the interview transcripts. The first is from the interview with one of the leading hands (a different leading hand from the one whose views are stated above) and the second is from the interview with the systems engineer and prefaces the more explicit focus he takes on the importance of productivity which is cited above.

> *Oh yeah, I think they'd* [staff he relates to higher in the company] *be all for training. It's just that when they get half the crew coming up here for half a day, and 'where is everybody? There's no work being done'. Ha ha ha ha.*
>
> *In the field you've still gotta go out and do the job and get it done. That hasn't changed... You can't get away from the fact that we, the industry I work in and certainly the side of it I work in which is the construction side, you've got to still go out and build something... And it comes from people in our organisation, very high up in our organisation, that have the vision to see that this is something that is worth investing in, in order to give us an improved business outcome.*

One of the means by which this support was articulated was through the notion of "culture". Star (1995, p. 26) has defined "culture" as "a set of practices with symbolic and communal meaning". In the following excerpt from the transcript of the interview with the Systems Manager, the imperative of linking training and outcomes is made very visible.

> *We, particularly in Queensland here, have a very strong push on training with Contractco and it's been evident on our motorway project and other projects before that and of course still here on this busways job... I think that certainly does present us with some new challenges that we have in going forward — how to deal with because its an evolution and it hasn't happened overnight with the company that we have a culture of training and a will and desire and in fact our supervisors are trained to make that part of their repertoire that, you know, time is made available to train our employees so we get better outcomes at the end of the day. And we need to find ways that we can actually include others outside our own direct employees, employed in the same process... Oh it's got*

> *to come from the top down. That is imbued upon the rest of us from our managing director of our firm such as some of the other salient measures that we employ like the quality of our work, the safety policy we have, our attitude and commitment to environmental sensibility. All those things come from the top down and training's no different. And it comes from people in our organisation, very high up in our organisation, that have the vision to see that this is something that is worth investing in, in order to give us an improved business outcome... It really stems from the business plan that's developed within each sector of our business and our discipline and construction managers have a responsibility to execute that business plan. You'll find in this company that there is a definite documented policy and approach to training that's there. So people have to deliver on that. And so the people that arrive on a project are made aware by others that they report to above them just what we're looking for on this job. A good example is this project here on the busways where we have appointed a full time training officer. I...was appointed to this project. Now that is the signal. There's been a budget allocated, a person allocated to fulfil that function and on this project I was there to assist in helping oversee the management of that with him. So that's a level of the commitment that the company's making, coming from the Managing Director down through discipline and construction managers onto the project site. And by doing that and allocating that resource you've then got a dedicated person, well trained, well skilled, well versed and experienced in that sector of what we are trying to achieve who can then go and certainly deliver much better on it than if you try and just throw that on as an extra item that someone's got to go and do.*

Again, we see ownership of the training and assessment initiative taken by the company in the voice of one of the local implementers through his use of the plural pronoun "we". A strong line of commitment to establishing a "culture of training" from the "Managing Director down through discipline and construction mangers " and then via a "full time training officer" who is a "dedicated person, well trained, well versed and experienced in that sector". Further, it is claimed this work of culture building is a "visionary" project, implying that the actors are behaving in an extraordinary manner.

The company Training Coordinator [Qld, NT, PNG] also commented on the "culture of training" that characterised the organisation he worked for. He also notes that this culture is not static but continually evolving.

> *Probably (I'm) fairly lucky in that I work for a company that training is part of our culture. Two or three years ago we had a Training Summit. One of the things that came out of the training summit was a brief that we will ensure that we can do everything we can to make people the best that they can be in their roles. And I suppose the last two or three years has been a reflection of that — taking on the training packages in both civil and mining and also building on what we had back then to improve the process and that's what it is really. It's a continuous improvement... Within this company it's from the very top down to the very bottom. Our Managing Director, he probably drives the culture. One of the things that came out of the training summit as I said was, "We'll try to make our people the best they can be in their roles". But again that culture permeates down through the company. You look at our operational managers, our functional managers. They allow that culture to flourish. At times there's issues of how much it's going to cost and how much time it's going to take. Fair enough. You know they have a job to do in x amount of time and x amount of money. But overall they help that culture on all of their jobs. The project managers' on the jobs. Again there's issues with time and money but overall they do fairly well. And then our supervisors, foremen, superintendents. They're pushing because it's their crews. Their crews are lifting the level so that they can do what it is that they have to do, and also I think the blokes now are starting to have a much bigger input into what they get at the end of the day. Down on the motorway we had our matrix set up that shows what competencies you've achieved and what you haven't. And one of the things that came out of that which was not surprising but I thought was good actually, was that people started to say, "Well hang on. This guys got two more competencies then I have and to get that ticket I need this one and that one". And that's good because they're pushing it from the bottom. So, as I said, I'm fairly lucky in that my job is not as it may be with some other training people in other organisations where I'm not constantly butting my head up against the wall to get these things done. Everybody sees the benefit in it and the company as a whole has seen the benefit of it.*

In the previous transcripts, the training initiative is attributed to those who occupy senior positions in the company hierarchy. However, in this

excerpt, the company trainer suggests that there is increasing interest in the attaining of competency credentials from those workers at the bottom of this hierarchy. As a result "everybody sees the benefit of it [competency training] and the company as a whole has seen the benefit of it".

This support was not always present within the company, however. The project trainer commented on the difficulties that were encountered in addressing this issue. Relevant excerpts from the transcript of his interview below show how he described this process of training acculturation.

> *The upper management always struggled with how you'd fit it in and also, certainly, the benefits, the benefits of training. With the lack of understanding of how it is all structured and where the reform agenda originally started from, it's very hard to grasp. There's a lot of acronyms; there's a lot of bureaucracy at a high level. It was new so no-one had any great model and that's what, I think, everyone struggled with — that no-one had a great model to say: "This is how you set up a training program". It was very ad hoc and certainly we've done it ad hoc in the years before the competencies came out. So, I think upper management always stood back and said: "Yeah. We're all for training" but didn't know how to give us the support to implement it. And it wasn't until really that the .25 percent push was on and also with the department, the Industrial Relations, pushing the ten percent and trying to work out a feasible way to use that properly. It was when our management was more or less coerced into sitting down and trying to find a way to progress forward. And yeah. Some of the senior management started to attend the meetings and then we had internal meetings within Constructo over the two projects; the SET project and the motorway, while they were both still running and we still have those meetings. So the senior management from the business units actually chaired these meetings and the more they chaired them, obviously the more they started to understand where it all fits.*

In this process of developing the culture of CBT, the role of the trainer assigned to specific projects was cited a number of times as a very important factor. In the busways project, the trainer was responsible for managing the training on-site and for the processes of recognition of current competencies. He played a pivotal role in implementing at the local level the policies and strategies that the Manager of Training & Development [Operations] had been developing at the national level. As

he stated in his opening turns in response to the topic of his work experience in the construction industry and in particular with this company, he started to work with this manager in the mid-1990s and continued his understandings of CBT and its possible forms of implementation in the subsequent years. In describing the strategy he used to determine the areas and levels of competency at the local level, he claimed that he used

> *a third party such as supervisors as a reference a lot and just my knowledge of these people as I get around the site. They could be doing a task and as I'm walking, I'm looking at what they're doing and getting to know them more than anything and then liaising with their supervisors and leading hands.*

This approach to CBT reflects a mix of a number of different discourses. Firstly, there is evidence of an understanding of the national agenda which was continually enhanced through his close involvement with the Manager Training & Development [Operations] and perhaps through the documentation that was provided to him in his training role. Secondly, he was a practitioner in implementing the workplace reform agenda. This practice involved his liasing with labourers but also the leading hands and supervisors who were assigned to their crews. Throughout his transcript, one can see how he was constantly evaluating the training and assessment processes he was adopting and making changes in response to these evaluations. Thirdly, he appeared to value the act of talking with his fellow workers for the primary purpose of "just getting to know them more than anything else" and watching them at work. The importance of understanding workplace practices has been a leitmotif in the vocational educational and training literature for over ten years. (For examples, see Lave & Wenger 1991, Scheeres et al. 1993, Kelly 1999, Farrell 2000). It was also a recommendation that was made by the current authors (Kelly & Searle 2000) in their first study of training within the civil construction industry.

In addition to using the responses to the topic of the history of CBT within this company as a point of departure to highlight the assumptions that underpinned the training and assessment practices within it, responses to other topics were also valuable in yielding insights into these assumptions. One issue that was mentioned by a number of respondents was the separate components of the labour supply for the company. This is the sixth sub-topic that is addressed in this report.

6 Workforce components and their implications for CBT

One of the major problems in training motorway workers that was cited by respondents was the difficulty of involving labourers who were subcontracted to the company. This subcontracted labour pool is marked by itinerancy and, in some crews, they comprise up to fifty per cent of the workforce. The Systems Manager in our study described this issue in the following way.

> *We've found, because of the proportionately large content of work undertaken by subcontractors, that the amount of effort we've had to put in to try and get people to commit to training has been far more difficult than when we've had the large proportion of our workforce as our own direct employees. I think that certainly does present us with some new challenges that we have in going forward — how to deal with because its an evolution and it hasn't happened... overnight with this company that we have a culture of training and a will and desire and in fact our supervisors are trained to make that part of their repertoire that, you know, time is made available to train our employees so we get better outcomes at the end of the day. And we need to find ways that we can actually include others outside our own direct employees, employed in the same process... It means that we instruct them that they have to play a part or a key role in mentoring people that they have direct control over... I talked before about subcontractors. I don't mean to sound critical of them but very very much, subcontractors tend to think in a short term basis because their livelihood really depends on that whereas this company, for instance, have a greater ability as a larger organisation to look at long term outcomes and I think that's why we have to be a leader in the industry in bringing things like training about because we're in a better position than others, like subcontractors, to actually look at this.*

The Safety Officer/Trainer also commented on the differences between contract and subcontract labourers, but his take was on the differential level of CBT opportunities that were available for each group. His perspective is evident in the following transcript excerpt.

> *Now the labour hire guys that come on board they're working side by side with our fellows and at this particular stage, they just see what they are missing out on, cause they can see that our fellows are getting trained all the time where these guys are just in the open market, you go here you go there you do this you do that. And*

> *I managed to actually get three of their fellows we had the other week, elevated work platform tickets and they wanted them and I said: 'Look. I'll ring your company' and because we had used them considerably, and spoke to them and said, 'Look for specific reasons we have Workers' Health and Safety coming through the sites and we don't want any guys working on machines if they're not qualified or if they don't have prescribed occupation tickets'. So I said to them, 'I think your guys have been working with us since day one so we now think you people should probably pay for these guys to attain these tickets'. And so they did which was good... One of our labour hire guys...brought his CV in with everything he's done to see whether we can assess him. And so they can see the benefits that our people are getting and they're wanting the same, they want to get to that level themselves.*

In the next excerpt, the company trainer is recriminatory regarding the opportunities that were available to subcontracted labour.

> *The subcontract workforce was where we probably didn't put as much emphasis at this early stage. We were trying to get it right with our people first... And a problem that we've get there is that if they would ther go to smaller companies who don't have training and then they also go through subcontractors who don't have any training whatsoever. So it's a case of, you know, 'if you don't use it, you lose it' and we're going to go through that for a while yet. But that has been a problem, the transient nature certainly is a problem. But it certainly wasn't addressed because of the number of projects we've had in the areas last couple of years.*

In addition to division between contracted and subcontracted labour, there were also divisions cited between younger and older workers. Again, the systems engineer makes his point very clearly about the problems that this particular division promotes.

> *What you've got is a couple of things going on. One is you've still got, lets call them the 'old school' operating out there who would just prefer to keep doing things the way they used to: mentor their people in the way they want to, very informal basis of training. Then you've got the 'new school', the newer type supervisors coming through. I mentioned some people have done Frontline Management. The older guys look at that and say: 'What the hell are they doing that for?' But that's okay. That's fine. But looking down the track, that's the way the industry will move. More and more and more, we're going to have supervisors fulfilling*

> *management type functions. I mean, that's something that's happening. So, you know, we're looking at helping fulfil that. And their attitude to it is different. Their attitude to it is different from the older school type people. Right? So that that's where you get that change. It's a cultural change you bring about and it's all about a different set of priorities and a different assessment of outcomes... And their attitude to it is different. Their attitude to it is different from the older school type people. Right? So that that's where you get that change. It's a cultural change you bring about and it's all about a different set of priorities and a different assessment of outcomes.*

A final category of difference with respect to CBT and training in general between types of workers was identified by one of the leading hands who was interviewed. This category was the attitude to training by individual subcontracted labourer working in earthworks whose workplace behaviour differed from that of employees in other areas of work. The following excerpts from the transcript of his interview show how he understood this difference in situ.

> *In construction, the level of people varies a lot. I don't think the level of intelligence isn't the right word, maybe aptitude. But attitude as well for people, you know. You can ask certain people , 'Can we do this?' and they might turn around and say, 'F off'. And I've got to try and deal with that... I think that happens a lot more in earth works than say, in interior decorating, I'd say, normally...Or painting, or building houses even... So I think there's a certain breed of people... So, um. Whatever you get out of these management courses goes out the door when you're dealing with people like that. All of a sudden you throw everything out the door and you try to deal with this individual character the way you think he's going to listen to you, not necessarily respect you, but just get him to do what you want him to do, you know. Yeah, that's pretty interesting... I have that role and it should not only be to better these people but so I can get the job done correctly. That's basically the training.*

This concept of *training* was very individualistic and restricted to a narrow task focus. There were other kinds of training that were mentioned in the interviews and the boundaries between CBT and other forms of training in these descriptions were somewhat seamless. Excerpts from the responses relating to these multiplicities of training forms are collected within sub-topic seven following.

7 Types of training and assessment programs offered by the company

In describing the Frontline Management course (a CBT program), the project training officer identified the following processes that were undertaken.

> *So the Frontline Management program was very much an action learning base where each week the supervisor will pick a topic that we want to discuss the next week and he chairs the meeting. He gets around to the rest of the supervisors during the week and asks them what they might want to talk about on a subject, for instance, motivation. I get back to the Manager Training & Development* [Operations] *with what everyone wants to talk and we just structure a program. They discuss things like principles and theories behind why things work. We get them to discuss some of the things that have happened out in the field recently and in the past and gave them activities they can take back for that week and try in real life, in real life work situations then come back the next week and report on how it all went. So we're finding that rather than have a classroom-type atmosphere, where they go in and they might do a supervisor course for two days (they finish their two days; they tick off that they've done the supervisor's course and they just go back to work and work as they did before), here they're actually implementing the learning and going out trialing it and coming back with the results. And it seems to be that they're taking very much an inward look at themselves and when they go to do something that they would have done in the past they are tending to go: "Whoops! Hang on! I can't do that. I need to go and try to attempt it this way". And that's just the results of — it's incredible for such a short time.*

This description is quite dense and needs a level of unpacking to identify all the elements that are listed by the trainer. Firstly, the program has an "action learning base". An action learning approach has been a popular mechanism for learning in the VET sector as evidenced, for example, by the work of Ballantyne, Bruce and Packer (1993) and the 'Framing the Future' project initiatives. The way that the action learning strategy operates, however, is not easy to follow. It appears that one of the participants selects a topic for discussion the following week, but how it is determined that that topic is acceptable to the others in the group is not made clear. Secondly, while this supervisor canvasses the details that might be addressed with respect to this topic with his colleagues, it is also

not made clear how this information is made known to the trainer. Thirdly, the links between the topics that have been addressed and the field activities that are discussed and set for implementation, and the reporting of this trial, are not clearly drawn. However, it does appear that even though they may be unstated, there are links between these components and, from the perspective of the trainer, the program has been successful.

The safety officer/trainer provided an evaluation of this initiative that was very positive. Below is part of his statement.

> *...towards the end... just the change in the attitudes of the people was really, we got a lot of benefit out of that, that particular training. And this was apparently...sort of...the initial...format that we were, that we were sort of the guinea pigs within the company that we went through and done this. So it's the first time that this company has done something like this on projects so...they're very pleased with...how it actually transpired right from start to finish.*

In addition to conducting a Frontline Management course, assessor courses have also been implemented. Below is an excerpt from the systems engineer's interview which focuses on the assessment program that was conducted.

> *So it's not formal training in the sense that: 'We train you to be a trainer' but what we do, do with our supervisors is we try to encourage them to obtain qualifications in assessing. We really rely on those people, our frontline people, to be able to assess the skills of other people that we're training and that's what we've done here on the busways job as well... A lot of it relies on their experience. So they do a self-assessment and basically what we do, is we attempt to firstly gain accreditation for our supervisors under the national competency standards that we try and put our workers through and that's just a basic first step because they would, through their experience predominately, qualify for that. Those that have done trades automatically qualify for the equivalent level 3 certificate. Others that haven't done formal trades as they used to be done in the past, we go through a self-assessment process with them and gain accreditation there so they've got the same sort of level working platform to work from that we're trying to bring the others up to. The next step is to put them through some semi-formal training. We've used other external providers available, in this instance, here in X, to come and help us achieve some sort of semi-formal training with the guys so that they can go through a*

> *learning process on skills assessment and then they undergo on some practical trials in the field and a little bit of written assessment to gain an accreditation as workplace assessors. So that's broadly the process they're put through.*

Perhaps the largest effort within this company, however, has been to assess the workers and formally recognise their current competencies. In the excerpt below, the site trainer observes some features of this process.

> *What we have done, and what all the industry has to do at the moment, is look at a great RPL process and qualify the existing workforce — which is where we're at loggerheads with the government. They were wanting the ten percent rule to bring new people into the industry, apprentices and trainees... We then went back to them and said we can't really do that. That's unfair to the existing workforce. So we've gone through a pretty heavy stage of RPL or RCC process and are continuing that and we do an initial assessment and the way that I've done it on this project is we have them on-site for a month or so and then I sit down with them and go through the criteria and do an initial assessment and then we can set up a training program that trains to the gaps and they just fit into a training program which essentially a lot of it is being done by myself and others on the site with some help from external providers for things like prescribed occupation training and obviously various training that we don't have the skill to do it ourselves. I probably haven't gone down the road of some of the contractors as much as bringing people in per se to do things like plan reading and basic site survey week in, week out, week in, week out till we just filter people through... What we tried to do was we brought the matrix and tried to show people where they were at and talk about the upcoming courses and also how the theory courses aligned with the practical things they had to do out on-site.*

This comment aligned closely with our findings from our previous study where we noted that the company was working towards crediting *all* of their workers at the second level of competency on the civil construction standards, and for those with formal trade qualifications, recognising their third level skills. The company matrix was an important vehicle for showing progress towards these outcomes.

While there was a commitment evident in this company to the implementation of the civil construction training package, other more informal training occurred which was linked to the acquisition to the units and elements of competency standards in a looser way. The following

excerpts are from interviews with two of the leading hands where they describe pre-start meetings and work activity briefings that were a regular feature of the workplace practices of the crews on the busways project.

> *Every morning we have a seven o'clock, actually we've still got two crews all meeting here, both the foreman and um the superintendent, he's super for both, you know, and the engineers come in. We sort of ( ), what our weekly targets are, what our daily targets are... , L...Rick will say to us you know, well okay we're getting the loop road done or we've got this done and if we get the results back we'll come back here you know. And that's sort of our morning, so we know what we've got planned out for the day... Normally in the morning it's just a pre-start for the day — what we're doing. If we're starting a new job or a new task we'll have a WAB (work activity briefing) and that's where we'll sit down with the plans, the crew doing it. We'll sit down with the plans on what we're doing and in that sorta we have it — covers everything from training, what equipment we're going to need, how long is it going to take us, and that way we sort of look at it and say, 'Okay well we got four guys in the crew, um and training'. People think with training you've got to sit in the classroom, like I said, we're going through that there like doing our trimming the floor and what not. We might have some of the crew that haven't got a roller ticket or something like that, you know, so we can get them on this job. We know there'll be a lot of rolling so we can get them to do it, you know, and get a bit of experience up. Or could be grade checking, you know, they haven't done a lot of grade checking so we'll put them with the grade checkers to get the experience you know, a bit of training at the same time. You can look at all that in the work activity briefing, so you look at the plans and work out the ah whole job how it's going and whose doing what and how we can get a bit of training — maybe swap guys around... each morning we have ah objectives to do for the day and the weekly target and every morning you sort of go over yesterday's objectives. How we went and whether we finished them, whether we had troubles, um maybe interfacing, maybe another subbie came through and we couldn't do it so we gotta put it off till today, you know. It sort of, it does cover all that, um and then sort of each Monday morning we go over the weekly targets, the weekly objectives for the week before to see how we went with them, you know...And then normally we have a tool box once a fortnight... And that runs*

through, normally the leading hands, (for about half an hour, sometimes or a bit longer, yeah) I mean the foremen do too but the leading hands take them and the foremen and we go through the different things, as well as the job, how's it going, safety aspects. [I mentioned WABs and asked how often these were held and told once a fortnight]... *WABs are sort of, there as your jobs, as you start a new task, you know. If you start a new job or a new task doing something you do that run through to make sure everyone knows what we're doing and you know, how the job's going with training or what not and your pre-start's every morning. But once a week your pre-starts you go, like every Monday, you go over the previous week's objectives... Ah, well the engineers would, well they'll explain it, well in a way it's everyone, the engineers, the foreman, and whoever's got the experience in doing these things, will sort of have the show to start with and then, you know a lot of guys have done it before with someone else so its everyone's input in it, if you know what I mean. It's not just the one-off, one person just doesn't take a WAB. It's whoever's got the experience. That's why you have WABs you know, between 20 guys you gonna have sort of, you know, maybe three hundred years' experience between all of them, you know... Even the little tasks all get a WAB because, you know, if you do a little task over and over, unless you're doing it efficiently, you're going to be costing money so you may as well have a WAB and get everyone's experience on how you're going to do the job the most efficient way so you save money, don't hurt anyone, all those things in one, you know.*

Plus with this company they do a lot of um, I don't know what you could call it, um activities as in um pre-start meetings to tell you what's going on in the day. Um we'll get activity briefings. Um if you're going to do a different task they have a work activity briefing. That way everybody involved in that task, they go through everything, safety, how its done, what we need, what we want. Um, you know, everything... Ah usually its run by, I think it's an engineer and a supervisor. And the men who are involved, um they just sit down in the group up and go through everything and say, 'Well we're going to start this project out there', ah and just go through step by step what requirements are needed... They mostly have plans there. Depending on what it is, what the activity is, they could have plans there um, everything. You know they think of everything from before they actually start it to um, ah everything

> *concerning safety, traffic control, um, machinery, tools, um more or less everything involved in that particular task... Yeah, everybody's got their own say, you know whether they um, yeah, 'That's a good idea. No we don't want that or'. The company runs that, not on every activity but um, if it's a new activity that no-one's done it before, especially if no-one's done it before well um there might be a deadline to it but ah, you know, we've gotta go through step by step procedures to make sure that the job's done right in a certain time... there is paper work for it that everybody's got to sign at the end of it saying that yeah you know they've attended that WAB and um, yeah that's it... on this WAB they've got everything ah oh various steps um like safety, the actual job um. I'm trying to think now what was some. Um yeah, you know, that's what it is. Everybody's got their say.*

Because the links between the CBT implemented by this company and the company work practices were aligned so closely, the pre-start meetings and WABs were an important component of the total training program that was offered.

Embedded literacy and numeracy competencies within the civil construction training package, as well as the literacy and numeracy skills of workers, were concerns of many of the respondents. In the next section, the topic of literacy and numeracy within training is addressed.

Perceptions of the place of literacy and numeracy within company training

Underpinning our interest in the training program that this company was offering was the positioning of literacy and numeracy within it. Although the interviewees knew that our ultimate interest was in how literacy and numeracy were integrated into the CBT that was offered, we did not want to pre-empt the interviewees' conceptualisation of this positioning by proposing possible concepts of literacy that we held or refuted prior to the interviews. As a result, in our list of possible topics to be addressed during the interviews, we tended to place literacy and numeracy as the final item on this list. Similarly, literacy and numeracy were not usually addressed *specifically* by the interviewees and as a result, there was often a question about the implications of literacy and numeracy within the training program that had been explicated during the interviews posed by the interviewer just prior to its conclusion. In the following statement by the Systems Manager we see how literacy and numeracy competencies

are variable according to work requirements, are related to "communication" but not in an explicit way, and are understood to be not a necessary component of work at the lower skills levels of the civil construction field. Yet, paradoxically, the situation is "frightening" and needs to be addressed in a "selective" manner.

> *...first and foremost, you've got to have practical skills and the need for numeracy and literacy skills associated with that varies depending upon the position you hold in the organisation. But to a large extent, a large proportion of the workforce can get by without a high level of skill in that area, have in the past and will continue to be able to do so, I think. However, as I've said before, the tools we use to do our job change and one thing I find is that communication, good communication skills, still remains a core basic requirement for a good outcome, and we've got things like work activity briefings, job safety analyses that we do. We record or document those and more and more we're trying to thrust that responsibility back down to workforce, to the people that carry out the work... So there's a need for someone in that part of the organisation to actually have literacy and numeracy skills to be able to carry out that function. And so there's a real need to continue to train people that will be able to do that. It's not going to be everybody. There's still going to be people out there that want to and can and will function in a real contributory way to bring their practical skills to the fore in our construction industry that won't require a lot of numeracy and literacy skills. But then there'll be others that have to fulfil those other functions we need and complement the practical skills the other guys have got as well as their own. So I see that we need to improve on it a lot. There's a real lack of skill in that area. It's frightening with some people but I think you've got to be selective in terms of how you go about it... A lack of numeracy and literacy skills will put a platform on just how far you can go. You want to rise higher and go further above whatever formal qualifications level you're at, you're going to have to acquire those skills to enable you to do so. That's really the nuts and bolts of it. And an absolute essential requirement to obtain a Level 2 certificate, one of the modules in there is plan reading. Now some people struggle with that and if you're realistic about it, you can't really give them that qualification. You can't give them a tick in the box on that one. Well, that's going to limit just how far they can go... Every construction worker can and*

should and must really achieve a Level 1 and they don't really, in my view which is just from the outside looking in really rather than working with it closely on-site, is that they can obtain that without any real problem. Their practical skills come to the fore the most and there are other communication measures they can use to get that across in assessments. But then you get into Level 2 and there are competencies there that are difficult to obtain without those skills. So they would struggle to obtain a Level 2 Certificate and that's really, that's the situation.

In the following excerpt from the Project Training Officer, we see how the determination of literacy competency is directly associated with the assessment of employees' written expression. There is also the concern evident that the acquisition of Level III competencies and future work practices are likely to require additional written demands on workers. At these points in time, literacy inadequacies will be manifested and thus will become problematic for the company. The PTO further notes that the company labour force employed on the busways project demonstrated higher literacy levels than those of the subcontracted labour force, and he attributed this knowledge to the latter's behaviour during safety inductions. Finally, he identifies a number of strategies that were implemented to lessen the reading and writing demands on workers.

...So I actually did a lot of the assessing myself from past experience and knowledge of these people using third party and a bit of face-to-face and not as much written questioning where you'd really find out what are their levels of literacy. As you would well know, it doesn't matter how you pass the criteria, the competencies' criteria, as long as you're deemed competent. But I think when you delve deeper into it, the more and more we ask people to fill out more forms because of safety and environmental legislation etcetera, etcetera, and quality assurance as well, I think we'll really open up a can of worms. Although on this project, I must admit, with this company labour force, I've found that the level of literacy was fairly good compared to what I've had to deal with in the past and I would consider that probably out of sixty, there'd only be about half a dozen people who would struggle, which is quite a low number compared to what the industry figures... [I suggest that assessment methods may be a factor here.] *Certainly, certainly. And as I say, if we went the other way and did a lot of written testing, we'd probably find that people would struggle with it. It wasn't so much the literacy levels, it's the time*

taken to fill in questions and especially if the questions had a lot of wording to them and a lot of thinking about how they put the words on paper. People are obviously very skilled but they struggle to actually put their thoughts on paper and that, that reason alone made them change the way of trying to get results because it was taking too long to do training, face-to-face training. Most of the time was taken doing the questions at the end of topics. So I had to find ways to make sure that they were competent, I suppose. The subcontract workforce was where we probably didn't put as much emphasis at this early stage. We were trying to get it right with our people first. But even just from the safety inductions we found that illiteracy levels there were fairly high and the problems of literacy levels were fairly high compared to our own workforce because we had hand-picked our own workforce, obviously. We had a proper employment procedure with reference checking and all this type of thing. So...I think with experience you tend to know if someone has got someone to do it for them and whatever. And certainly when you had them through the induction you'll find out. One's really nice and neat. That's because the wife had done it and Yeah, they filled it out pretty messy. So, Yeah. But because we do have a lot of things like safety checklists and a lot of forms that these guys have got to fill out and signing dockets and all that sort of thing. You tend to pick up quite quickly who's literate and who can't do the job or not... There are high illiteracy levels and the more pictures and things we can do and the more action-type, physical activity-type training we can do, the better people will react to it... As I say, because we're not doing a lot of literacy and numeric type of learning, I haven't come across a great difficulty as yet but I see that once we do get into using literacy and numeracy a lot more which is probably down the road a bit... Certainly into Level III. Certainly Level III because Level II competency numeracy and literacy is still fairly low. The industry talks about Level II being a say a second, third year apprentice-type person who probably fills out time sheets and basic things like a time sheet and some safety checklists and whatever. When they get into Level III, the trades level, they really have to start looking at quality documents and things like that and I think that's where we really start to find out where the problems are.

In the next excerpt presented at length below and which is taken from the interview with the project training officer, we see how the literacy and

numeracy competencies of the workers is considered an issue for the company. The following points are addressed: firstly, whether the company should provide courses for those with inadequate literacy and numeracy skills to meet workplace demands, and how this might be accomplished; secondly, whether it is acceptable to use oral methods of assessment and recording as alternatives to written ones, and what the implications of such practices might be; again, how training might be presented to lessen the burden of literacy and numeracy demands on workers; and finally, how dependent the work practices are on literacy and numeracy competence.

> *Literacy and numeracy is a big consideration for us. And it's probably one of those things that's been, been an accepted evil, I suppose... I mean within the construction industry, you know, there's guys who drive dozers or do whatever who can't read and write. You know I suppose there's been an acceptance that it's not the company's job to teach these people to read and write. I can see their point of view but I don't necessarily agree with that. I mean we've spent x amount of dollars developing all these training manuals. It's no good if 90% of the guys out there can't read and write, is it? You've wasted your time and money. So, it is a problem. I mean, I personally saw it myself when I was working on the Motorway. Guys would come in to do their inductions, and it's paperwork that has to be filled out and a couple of times I would say, "Here's your paperwork mate. Just fill that out and you'll be right". And you could see blokes sitting there and I mean over time I would just do it myself because it was easier and quicker to do. But until you're confronted with it, I think it's one of those 'hiddens' that you don't really take into account. You know it's there. It's sort of acceptable, you know. You just don't worry about it because you've got something to do. It's definitely something that has to be addressed because it's the basis of what all this training is about. Some of the things, too, are becoming more technical, you know laser levelling, even the dozers and things like that now, a lot of it is computer based, that sort of thing. So it's definitely something that does have to be addressed and I think it should be rolled into a training package as an 'add-on' if you like. So that at the same time as they are doing this competency based training there's an extra in there for basic reading and writing, to get them to a level where they understand the materials or the information that you're providing to them. How you go about that is a different*

matter... down the track, I mean if say you were to do a test with a bloke on a day and it was all oral, how do you, twelve months down the track, actually prove? You know, issues like that, health and safety. There's an accident with a dozer. Workplace Health and Safety inspectors come in and says, 'Was this bloke competent?' 'Well, yes he was'. 'Well show me that'. And that's what they do. You know, 'Well where's the paperwork? Where's the history that shows it?' I mean if I was to say, 'Well I sat down with him and he answered ten questions out of ten so I ticked the box'. Well, you know for you and I that may be acceptable but the harsh reality is that to the lawyers in court that's not. And I would have difficulty, and I know most people would have difficulty, in accepting that as a basis of work. You know it just doesn't address the risk of what may happen down the track and look that's one of the issues. I mean guys, there's a lot of blokes who are very good at what they do. They can't articulate that onto a piece of paper and that holds them back. But at some point you have to balance out, 'Well yeah that's fine', and unfortunately to a certain extent that's his problem because when you look at the broader picture the risk in it for the company for things like that just doesn't outweigh doing him a favour by ( )...At Level 1 the skills in the competencies are fairly basic but by the same token I think there's competencies like 'Work Safely' and 'Communicate with Others'... for people who have a problem with reading and writing, you're really taking those things [Ability to engage in paper-based activities such as WABs] *out of the equation... The JSA's and work activity briefings the crews actually sit down and go through them. They all sign off that they agree... all of those are available in the crib rooms and things like that. But again you're making the assumption that people can understand what that says on paper... You know we have a Tool Box talk every week about an issue to do with the job. One of the things we did down on the Motorway was to get up A3 Tool Box talks... well they're much more interactive. There's pictures and things like that. Again trying to address that. If you put it on a foolscap bit of paper, people didn't associate what you were saying or what was on paper with what was actually happening... So that was one of the things we did. So that those people who did have problems with literacy, could actually see it on a piece of paper. But yeah it is a problem. I mean we come down here to these ones, 'Tests and Questionaries', 'Check Sheets', those sorts of things,*

> *'Pre-Start Checks for Equipment'. A bloke gets on a dozer in the morning, he does his pre-start, blah blah blah blah blah, and away he goes. Now again, if he has literacy problems, is he actually understanding what is supposed to be in there or is he ticking the box so it keeps him out of trouble?...when using the dozer, for example. You hop in the dozer in the morning, under the seat is the Pre-Start Checklist... So they'll go through. It's simple things, you know, fuel levels, oil levels... equipment, you know, if the reversing beepers working, the reversing lights aren't broken, that sort of thing... There's the Pre-Start meeting where the crew sits down and says, 'Okay, this is what we're going to do today' and they go away and do it. But associated with that, anything to do with plant, there's paperwork that goes with it.*

In this initial analysis of the data that was made during the interview sessions, a number of assumptions and principles are evident. Firstly, there is quite a long history of commitment by this company to training its employees and in some cases, its subcontracted labourers. This commitment was a finding from our study of the training initiatives on the Pacific Motorway, and it is highly visible in the interview data. Secondly, this commitment has been influenced by the national training initiatives that have been implemented over a ten-year period. Thirdly, there is an understanding evident that such training is best managed and delivered on-site. As a result, none of the training that was mentioned by the interviewees was conducted off-site. Furthermore, this company is a registered training organisation, and it is envisaged that most training and assessment will be conducted by company trainers. Fourthly, it was assumed that training should take multiple forms. Thus, training has included formal programs such as the Frontline Management initiative, which was supplemented by input from an outside provider, as well as more informal training sessions such as work activity briefings. Fifthly, with respect to literacy and numeracy training, there are mixed views evident in the data. While basic literacy and numeracy skills are perceived to be inherent in the acquisition of most of the training package competencies above level one, they have not necessarily been required in the past for the successful accomplishment of work tasks, for example the driving of dozers. However, it is envisaged that as technology, decentralisation of responsibility, and accountability impact increasingly on work tasks, then the literate and numerate requirements of jobs will also increase. These issues, however, do not seem to be evident, at this time.

Thus, it is evident that, in contrast to smaller organisations within the construction industry (Crowley et al. 2000), this company has made a commitment to learning and an investment in training in order to maintain its position as a leader within the industry. That is, it is committed to maintaining and enhancing a reputation for efficiency, cost effectiveness and timeliness in the completion of contracts. The next section expands on how and why this company might claim to be a learning organisation.

7 Further analysis of data

The company at the centre of this investigation was selected because, from previous research, it appeared to have a high commitment to training. As interview transcripts were being analysed in relation to the original research questions, it became apparent that there were a number of aspects to this company which suggested how a 'learning culture' might be developed. As a result, research literature related to 'learning organisations' and the 'changing nature of work' was consulted. In this section, data will be presented to show that the company at the centre of this case study exhibits characteristics which according to Gee (2000) constitute a 'high performance' workplace, while at the same time is developing as a learning organisation (Watkins 1998). However, this was not achieved overnight, and it needed the vision of a 'champion' to reform training, not only within this company, but the industry as a whole.

Initially, Watkins' (1998) "dimensions of a learning organisation" are used in order to identify similar characteristics within this company. This is then followed by a discussion of some of the discourses surrounding workplace literacy. Each of these topics will be discussed in relation to the literature and supported by quotations from transcriptions of interviews with employees at several levels within one company.

The company as a learning organisation

The vision inferred in the above heading is embodied in the corporate code of ethics, corporate objectives and the corporate quality policy, all of which are presented explicitly in policy documents. In addition, there is an equal employment opportunity policy which not only espouses an affirmative action program, but also includes statements on training and development. For example, the company is committed to ensuring that all employees are "the best they can be in their role"; to ensuring "the rapid transfer and development of knowledge"; and to "becoming a learning organisation". Further, it is claimed that every employee within the company can access formal and informal learning and skills development programs to assist in personal and organisational development. Such statements are congruent with some of the dimensions of a learning organisation (Watkins 1998) as outlined in Table 1. These dimensions are:

1. Create continuous learning opportunities
2. Promote inquiry and dialogue

3. Encourage collaboration and team learning
4. Establish systems to capture and share learning
5. Empower people toward a collective vision
6. Connect the organisation to its environment
7. Leaders model and support learning.

In the following sections, each of these characteristics will be discussed in relation to this particular company, and their relationship to attributes of a high performance workplace will be examined.

1 Create continuous learning opportunities

As previously mentioned, the company commitment to becoming a learning organisation is stated explicitly in the company policy documents. For example the corporate objectives include, "To enable our employees to develop their potential by providing appropriate training and career path development". Subsequently this objective is elaborated in Human Resource objectives such as the company "becoming a learning organisation" and employees being "the best they can be in their role". Further, "every employee...can access formal and informal learning and skills development programs to assist in personal and organisational developments." In order for this to occur, the company has developed its own Skills Development Programme. While the company is a Registered Training Organisation in its own right, this Skills Development Programme is built upon strategic learning partnerships with other providers, including universities, TAFE institutes, the Association of Professional Engineers, Scientists and Managers, Australia (APESMA) — Management Education Programme and the Frontline Manager Programme — and other registered training organisations. Further, as a learning organisation, the company has undertaken to establish programs that encourage innovation, creativity and leadership by developing its people. For example, reference is made in company documents to "the Model Development Projects (MDP) program which provides a platform for exemplary performance where our people can be the best they can be in their job". The MDP learning environments promote:

- the development and implementation of "our" own technology
- rapid sharing of knowledge throughout the group
- workplace development and learning
- prudent implementation of IT support, and
- learning centres.

So, the "design" of the company becoming a learning organisation is stated in the company policy and objectives. How this design is enacted becomes the

responsibility of personnel at all levels within the company, as shown in the following table (Table 3).

Table 3: Creating continuous learning opportunities

Position	Training role
Manager Training & Development [Operations].	*The key directive that I have and still follow* [is]*: to develop the skills and capabilities of the employees so they become the best they can be in their roles, whatever those roles are in any given time. So, that's a very important prime directive. The other two: recognise the competitive advantage. Going through a rapid exchange of knowledge between business units is all about growth. Dissemination is what they'd call it, and learning. And of course, the third one there is really one of the methodologies we are trying to capture: the use of technology that helps us move that knowledge and the continuous improvement around. But notice also that's it said: 'without formal structures'. So, the idea is to have a very informal process of moving knowledge and learning around. And we're working on that very hard at the moment.*
Manager Coordinator [Qld, NT, PNG]	*...part of my job at the moment is to organise training across our range of disciplines, mining, civil engineering, building, also process engineering ...on a couple of levels, at the workforce level, the introduction specifically of the Training Packages in Civil Construction...and for our staff it's basically the implementation of our...Skills Development Program...and, when we see a need, also organising training and development courses for our Executive Managers, that sort of thing. Probably two or three years ago we had a Training Summit. One of the things that came out of the Training Summit was a brief that we will ensure that we can do everything we can to make people the best that they can be in their roles*
Systems Engineer/ Community Liaison Officer	*There's been a* [training] *budget allocated, a person allocated to fulfil that function and on this project I was there to assist in helping oversee the management of that with him. So that's a level of the commitment the company's making, coming from the Managing Director down through Discipline and Construction Managers onto the project site and by doing that and allocating that resource you've then got a dedicated person, well trained, well skilled, well versed and experienced in that sector of what we are trying to achieve, who can then go and certainly deliver much better on it than if you try and just throw that one as an extra item that someone's got to go and do.*
Leading Hand	*I have a role and it should not only be to better these people but so I can get the job done correctly. That's basically the training. Of course you've got to judge your training per job per person.*

Nevertheless, it is one thing to state that a company should or will become a learning organisation and quite another to achieve it. One of the main challenges is to change the culture of the organisation, to change worker attitudes and motivation to engage in training. In this company, this was largely achieved through talk.

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2 Promote inquiry and dialogue

There are several aspects to promoting inquiry and dialogue which are evident within this company. First, in order to promote change, it was important that workers understood that their experiences and that opinions were valued, that they were encouraged to question and problem-solve, and that they would receive supportive feedback. As the safety officer/trainer commented, once all the industry wanted was a labourer "from the neck down"; now, he is explicit in trying to encourage young workers to start using their heads, to question whether they are putting up scaffolding correctly and, if unsure, to check.

> *We're getting more of that where they're getting confidence that they can hopefully go to the supervisors and know that they will get a positive response rather than it's a bother*
>
> (Workplace Health & Safety Officer Trainer)

However, it was recognised that mechanisms were also needed which would allow for employee dialogue. So, the second aspect promoting dialogue was the development of a system of communication which ensured that all workers on a project were fully informed of all issues and had an equal opportunity to contribute to discussions. For example, one of the leading hands stated that the 'work activity briefings' (WABs) were important as everyone who is involved in the task is required to attend while the engineer or supervisor progressed step by step through the particular and relevant stages of the project, often working from plans. Topics that were covered include:

> *everything concerning safety, traffic control, um, machinery, tools, um more or less everything involved in that particular task....everybody's got their own say, you know whether they um, yeah, 'That's a good idea. No we don't want that or...'*
>
> (Leading Hand)

The importance of these meetings will be discussed later but in terms of dialogue, meetings such as the WABs and 'pre-start' meetings allowed for a discussion of vital issues, such as the need for certain equipment or decision making about how many experienced workers are required.

> *Within the half day, if we need to have something to change it or fix it, whether it meant new machines or change the work procedures completely or bring in new work labour. That was brought up at that meeting: allocation of tools that was required for the next day... We'd go in at four o'clock, have a meeting and all those things were discussed.*
>
> (Leading Hand)

The third aspect of using dialogue to promote change was exemplified in relation to a document referred to as 'the matrix' (see Appendix A). This document, which depicts who has which industry competencies, became a useful tool around which talk was focused. As the Project Training Officer stated:

> *What we tried to do was we brought the matrix* [Training Plan] *and tried to show people where they were at and talk about the upcoming courses and also how the theory courses aligned with the practical things they had to do out on-site.*
>
> (Project Training Officer)

So workers who previously had not considered any form of training now saw that a pathway was available and achievable. They could talk to others about their progress on the matrix and how this might be extended and this was supported by the talk at the WABs and pre-start meetings which are the subject of the next section.

3 Encourage collaboration and team learning

While at one level the WABs are seen as being an efficient way of ensuring that every team member is informed of the steps within a project, it is also apparent that the WABs were also seen as being significant in encouraging collaboration and team learning. For example, the Manager Training & Development [Operations] discusses WABs as follows:

> *work activity briefings* [are] *where teams of people actually work through the whole concept, the engineering concept, and then how to do it and work out what's the safest way and the best way and the practical way and whether they've got all the skills that they need and then they put the procedures and outcomes.*
>
> (Manager Training & Development [Operations])

One of the trainers, the systems engineer/trainer, took this argument further by stating that "supervisors are trained to make that [the company training culture] part of their repertoire". When asked to expand on what this means, he stated "we instruct them that they have to play a part or a key role in mentoring people that they have direct control over".
In discussing the culture of training which has developed within this company, the Training Coordinator (Qld, NT, PNG) argued that if the culture is 'ingrained', then the benefits of training will become apparent to everyone. For example:

> *...our supervisors, foremen, superintendents, um they're pushing*

> *because it's their crews. You know their crews are lifting the level so that they can do what it is that they have to do. And also I think the blokes now are starting to have a much bigger input into what they get at the end of the day. ...And that's good because they're pushing it from the bottom so I mean as I said I'm fairly lucky um in that my job is not as it may be with some other training people in other organisations, where I'm not constantly butting my head up against the wall to get these things done. Everybody sees the benefit in it* [training] *and the company as a whole sees the benefit of it.*
>
> (Training Coordinator, Qld, NT, PNG)

In addition, if it becomes apparent that some of the employees need a statutory 'ticket' in specific technical competencies, then the trainer will engage in "mentoring, coaching on-site with the guys who have got them already and then assessing them on those different competencies". Further, in order to develop a core of skilled workers, the overall training plan enables employees to follow training pathways which will eventually articulate into certificate levels 4 to 6. Meanwhile, as these certificate levels are not yet available, the alternative is to provide managerial courses, such as the Frontline Management initiative, which was designed to encourage different modes of thinking in collaborative groups. For example, the Project Training Officer commented:

> *...the Frontline Management program was very much an action learning base where each week the supervisor will pick a topic that we want to discuss the next week and he chairs the meeting. He gets around to the rest of the supervisors during the week and asks them what they might want to talk about on a subject, for instance, motivation. I get back to [the chair] with what everyone wants to talk [about] and we just structure a program. They discuss things like principles and theories behind why things work. We get them to discuss some of the things that have happened out in the field recently and in the past and gave them activities they can take back for that week and try in real life, in real life work situations then come back the next week and report on how it all went.*

Further aspects of the Frontline Management initiative are discussed in the next section.

4 Establish systems to capture and share learning

The company acknowledges that the quality of employee relationships directly correlates with the achievement of project targets and, therefore, a strategic approach is taken to developing and maintaining high levels of workforce performance. This has resulted in training taking on a high profile within the company. So, for example, new employees are inducted into the company management systems to facilitate team building so that all stakeholders within the industry work together to achieve positive outcomes. In addition, the company is a registered training organisation capable of delivering and assessing a range of accredited programs. The benefits accruing from registration are described below.

> *But one of the things that we did also was to become a registered training organisation so that we have the power of that for our people, the recognition and those things. And that does some good things. It formalises for our people the outcomes. It gives them awards that they'd never had before. So that's very powerful. It's also very powerful in terms of our commercial advantage that we can do that and even to the extent now that it makes a difference. That's very important.*
>
> (Manager Training & Development [Operations])

The company also works with other providers through strategic learning partnerships to provide a range of training options at different levels within the company. One such option which has been implemented is the Frontline Management initiative.

> *But we've also done the same* [developed a partnership] *with Southbank TAFE with the Frontline Management skills. And the way in which we did that was, of course, they actually did an evaluation of our people but we developed the coaching process and put that into place.*
>
> (Manager Training & Development [Operations])

Central to the company training strategy is the company Skills Development Programme which "provides a diversity of delivery modes ensuring all employees have the opportunity to participate in training and development, whether by attending short courses, on the job training or distance education" (Company Policy). Thus, as a learning organisation, the company has established systems "to encourage innovation, creativity and leadership by developing its people" and provides a learning environment through the Model Development Projects (MDP) Program.

> *...at the level we worked at, at the Frontline Management course,*

> *we recognise ourselves and then from being outside of the company I realised that these fellows, these younger fellows who are at that supervisory level now, came through the 'school of hard knocks' because they're all guys where 'biff, bam, you do as I say and don't question'. And these guys came through that so when they achieve that position now it's my turn to kick butts sort of thing and then all of a sudden... there's that inner, have a look at yourself... and now ...these fellows are now realising that they can get better results by encouraging our workforce to come out, and their giving them more ownership of the job, they're giving, they're looking for the guys that show leadership qualities and putting them into the positions of leadership.*
>
> (Workplace Health & Safety Office Trainer)

While the company has put formal systems into place to enable all employees to access learning, the informants in this study were also aware of the informal learning which occurs on-site. As previously mentioned, part of the overall training culture was the expectation that trainers and supervisors could recognise informal learning in the workplace. Often workers associate training and learning as being something which only happens in the classroom, thus if they have not undertaken formal 'training', they could not be assessed as competent. So, one of the roles of the trainers has been to make workers aware of what they have learnt.

> *Certainly I've pushed it to the limit to try to get people to understand they can learn all day and they are learning all day and there's quite a number of circumstances where there are people coming to me and saying: "I know I haven't done any courses". And I was able to say to them: "Hang on. I knew you didn't know anything about concrete when you came here and I saw you in a team of people pouring concrete and actually finishing off the edges the other day. You're telling me that you haven't learnt?" And the guy was: "Oh!" And the light bulb comes on. So actually he had to have learnt on the job and he didn't even sit in the classroom any amount of time.*
>
> (Project Training Officer)

A second role for the trainer is to plan ahead to the next phase of the project (or to develop the skill composition of his team) and to provide opportunities for workers who do not have the necessary skills or experience in one area. This role was explained by one of the supervisors.

> *People think with training you've got to sit in the classroom, like I said, we're going through that there like doing our trimming the floor and what not. We might have some of the crew that haven't got a roller ticket or something like that, you know, so we can get them on this job. We know there'll be a lot of rolling so we can get them to do it, you know, and get a bit of experience up. Or could be grade checking, you know, they haven't done a lot of grade checking so we'll put them with the grade checkers to get the experience, you know, a bit of training at the same time. You can look at all that in the work activity briefing, so you look at the plans and work out the ah whole job how it's going and whose doing what and how we can get a bit of training – maybe swap guys around.*
>
> (Leading Hand)

The importance of the work activity briefings (WABs) in the development of workteams and also creating a shared learning environment is discussed further in the next section.

5 Empower people toward a collective vision

According to Jackson (2000), another characteristic of a high performance workplace is the concept of "continuous improvement". This often involves a cycle of planning, executing, checking and refining operations to improve efficiencies. In addition to collaborative training meetings with other construction companies, this company has adopted a series of activities designed for this purpose as shown in Table 4.

The data depicted in Table 4 represents the number of workplace activities in which workers' at all levels within the company are involved in decision making. For example,

> *If we're starting a new job or a new task we'll have a WAB (work activity briefing) and that's where we'll sit down with the plans, the crew doing it. We'll sit down with the plans on what we're doing and in that sorta ...covers everything from training, what equipment we're going to need, how long is it going to take us. And that way we sort of look at it and say, "Okay. Well we got four guys in the crew, um and training" ...So you look at the plans and work out the whole job, how it's going and who's doing what and how we can get a bit of training – maybe swap guys around.*
>
> (Leading Hand)

Table 4: Workplace activities

Activity	Timing	Personnel	Purpose
Inductions	When hiring new employees	WH&S Officer	Induction to company, WH&S
Work Activity Briefing (WAB)	Commencement of new job	Whole crew	Site plans, training needs, equipment
Pre-start meetings	Every morning (sometimes evening)	Leading Hand to whole crew	Objectives for the day Problem solving Discussion of previous day
Pre-start check lists	Start of shift	Individual	Equipment checks Safety checks
Task specific briefings	Start of shift	Individual	Task objectives Problem solving
Job Safety Analyses (JSA)	Commencement of new job or task	Whole crew	Analysis of safety procedures Environmental issues
Toolbox meetings	Once a fortnight	Leading Hand or Foreman to crew	Job issues Safety issues

Similarly, the Manager Training & Development [Operations] articulates his vision for the success of the WABs.

> *Now, that's pushed that right down and gained ownership. Everybody in that team is then empowered, in fact, to do that because it's been discussed, it's been signed off. They physically sign it off, as you know. So that then empowers people to take action without having to wait and be directed as long as it's actually in line with that plan. So. Yes. That's been pushed right down. So. Then that happens and that's the best example of it that I know.*
>
> (Manager Training & Development [Operations])

Employees are allocated to teams "well for the zone, we sort of answer to one but we're still working as a, as a team" (Leading Hand) and not only are they expected to attend the various meetings, they are also expected to accept responsibility for the outcomes. This is formalised through a signing-off process.

> *The JSAs and work activity briefings, the crew actually sit down and go through them. They sign off that they agree*
>
> (Training Coordinator [Qld, NT, PNG]).

The crucial role of communication and literacy in understanding, recording and signing-off on these meetings will be discussed in a later section. In this section, the focus is on how a shared learning environment

is developed. One way is for the training managers to attend workplace meetings, to encourage workers to 'own' the training and, as will be identified in a later section, to model and support learning.

> *I've tried to create a culture of learning and ensuring the guys fully understand. That learning in the construction industry is probably different from a lot of other industries. We actually learn a lot of our skills and even the underlying knowledge out on the job. We've taken great pains to make the training meetings with these guys and we're constantly in their ear about 'You've got to create the learning environment yourselves out there and put your hand up to find out things you're not sure of' and also trying to encourage the experienced people to train the less experienced people in their crews. And that's been very much worthwhile.*
>
> (Project Training Officer)

Nevertheless, according to the engineer, the company would not commit to training just for the sake of training, "there's got to be some measurable outcome". This is articulated as firstly, the necessity for "a good team work approach" in order to achieve a coherence over short term projects. Secondly, the very fact that projects are short term means that opportunities for training are limited in time. So, the focus is on collective training and "acting smart" in combining resources and collaborating across the industry. In addition, the company values its core workers who are trained in the required skills, who adhere to company values and are therefore less of a risk.

> *Acting smart...that's when you'll get better commitment from your Supervisors. If he can see that that's going to help him get his job done then he'll commit to it better. And that will vary from job to job, from person to person, etc.*
>
> (Systems Manager)

Another aspect of 'acting smart' relates to Quality Assurance as part of continuous improvement. This may be seen in terms of assessing risks, to the company, the shareholders, other stakeholders, or the environment. The concept of 'risk' is one which will be taken up in the next section.

6 Connect the organisation to its environment

The company code of ethics promotes non-discrimination and treating the community, the people, and the environment with dignity and respect. The safety officer/trainer explained what this means in terms of assessment.

> *You have to be firm but you have to be fair because we can't afford to be giving people an assessment and pass them and putting them in a position that they're not very competent in. You're putting them at risk. You're putting the company at risk .*
>
> (Workplace Health & Safety Office Trainer)

He then went on to discuss the necessity to educate the workforce, at all times, in terms of safety. The workforce needs to be able to assess the hazards and risks of the worksite in which they are working. The workers are no longer looked after but have to become more independent and take responsibility for their actions. Safety is "their responsibility".

A further example of accountability was presented by a company trainer who stated that he believed that it was important for companies to actually address issues of responsibility or risk litigation.

> [If] *there's an accident with a dozer, um Workplace Health and Safety Inspectors come in and say, 'Was this bloke competent?' 'Well yes he was.' 'Well show me that.' And that's what they do, you know. 'Well where's the paperwork?' 'Where's the history that shows it?' I mean if I was to say that, 'Well I sat down with him and he answered ten questions out of ten so I ticked the box'. Well, you know, for you and I that may be acceptable but the harsh reality is that to the lawyers in court that's not.*
>
> (Training Coordinator [Qld, NT, PNG])

Form a Leading Hand's point of view, quality assurance relates to time and efficiency.

> *You've got to have a certain standard that you're meeting with your workforce. If you haven't got that standard, there, then you get a lot of re-working. You have to spend more time relaying the instructions and it all comes back to time management.*
>
> (Leading Hand)

7 Leaders model and support learning

It has been shown in a number of the quotes presented in earlier sections that trainers and supervisors have taken on significant roles in promoting different forms of learning, whether formal training or informal on-site learning. Part of this has to do with the development of the company culture of training and the ethos of becoming a learning organisation.

> *And inclusive processes such as the work activity briefings processes which involve dialogue and exchange which I think are fairly powerful and certainly trying to get our programs more coach-driven than just paper-driven.*
>
> (Manager Training & Development [Operations])

Another characteristic of learning organisations and high-performance workplaces is the introduction of work teams. As work has become project based, the role of the middle manager has changed. Rather than 'managing' the team, each team member is encouraged to become a mentor and the former 'manager' takes on the role of team coach. So, for Systems Manager, one of the most important outcomes of the Frontline Management Initiative has been the encouragement given to supervisors to gain assessor qualifications and begin to mentor workers in their teams.

> *It means that we instruct them that they have to play a part or a key role in mentoring people that they have direct control over. ...it's not formal training in the sense of 'we train you to be a traine'r but what we do do with our supervisors is we try to encourage them to obtain qualification in assessing, we really rely on those people, our frontline people, to be able to assess the skills of other people that we're training and that's what we've done here on the busways job as well.*
>
> (Systems Manager)

One of the most striking aspects of the transcriptions is the number of times informants refer to the terms 'coach', 'coaching' or 'mentoring'. Similarly, reference is made to one or two key figures whom they believe have provided leadership and vision. These are the industry champions.

> *I've learnt a great deal from this project and how to deliver training and what are the different ways to deliver training. With more resources, training resources available has helped a lot too. The support in the Brisbane area again was always there from people like ...*[the Manager Training & Development, Operations] *and also the other training coordinators from the other major contractors. We have training meetings once a month which you probably will know and were all trialing different things.*
>
> (Project Training Officer)

While it has not been possible to measure the relative success of each of these dimensions of a learning organisation, it is evident that these characteristics have, to greater or lesser degrees, value-added to the efficiency of this company. At the same time, there is an underlying assumption that knowledge capital, in terms of employee competence, is also of benefit to the company as a high-performance workplace.

The company as a high performance workplace

Changes to the industry, in terms of the introduction of team work, new technologies, and high performance, have meant that there is a growing awareness in the industry of what Gee (2000) terms 'portfolio workers'. The importance of team work has already been discussed, but increasingly in the transcriptions, the focus was on the introduction of new technologies into the industry. In commenting on the effect of these moves, the safety officer/trainer stated that

> *...if the labourers don't move up, up the sphere, and get away and get skills, there won't be any work for them because technology is taking over all the time.*

Similarly, the Training Coordinator [Qld, NT, PNG] stated that

> *the people of tomorrow will be much more embedded in the use of technology than we are. And that's simply a way of doing what the manufacturers and the designers and the inventors are doing.*
>
> *This sentiment is echoed by the Training Coordinator* [Qld, NT, PNG] *who stated that opportunities now exist for the redesign of instructional materials using new technologies as part of a philosophy of continuous improvement.*
>
> *Um the first round were paper based, book based, now we're starting to get them on CD-ROM, um on overheads, all that sort of thing. Our next round we'll probably be to upgrade them so that they reflect the Competency Unit Learning Packages, the CULPS. Basically what the CULPS are is they take each unit of competency ah and then develop a CULP for it, the Competency Unit Learning Package and that CULP basically outlines how you're going to deliver the training outcome of that competency. So it's a roadmap of how to achieve what it is you're going to achieve.*
>
> (Training Coordinator [Qld, NT, PNG])

So, either the people of today disappear from the labour force or they have to learn how to control and direct technology, which is why training is so crucial.

The importance of having an experienced workforce was also taken up by a Leading Hand.

> *The company's base job is to make money, you know, and to do that you've gotta have an experienced workforce... You don't want to have a workforce that has got no experience at all cause then you'd be only spending that much time on training not going to do*

> *any work. So you sorta want a balance of both so you can keep your old workforce but still bring in a newer workforce and get their experience up. So when these guys leave you've still got your training coming through, you know.*
>
> (Leading Hand)

Given that work in this industry is essentially project based then, taken a step further, workers who build up a portfolio of skills will find it much easier to move from project to project.

> *Well, the next time you go to rock up on the door and ask for a job on the next project there's going to be people walking up there with what we call industry passports and qualifications. Now, obviously an employer is going to look at someone with a qualification before he looks at someone who's got no history on it.*
>
> (Project Training Officer)

To take this further, the Manager Training & Development (Operations) has a vision of a seamless movement of qualified workers across industry sectors as 'core workers'.

> *And there is but we need to map that so that when people are assessed in one place they actually have an ability to move across. Now that's important because we have these people who are going from construction into mining, from mining into construction and both of them are going into local government, all of which operate in those same sorts of areas. So there needs to be a boundaryless movement and we haven't achieved that yet because we've all been concentrating sort of solo about how we develop skill within our own organisation.*
>
> (Manager Training & Development [Operations])

The concept of 'core worker' was defined by the engineer as being those workers

> *that know our systems, understand our work ethic and culture, and help disseminate that to others that work in and around them.*

Thus subcontractors are excluded, as are hired labour.

> *...in the civil we're pretty technical a shorter duration type project. So our opportunities for training are restricted and that's why it becomes more difficult and the value of our core employees, like I said before, is rising to the fore. So what we're looking at is looking at a collective industry, is looking at a collective means of delivering this training and that's starting to happen.*
>
> (Systems Manager)

In Gee and Lankshear's (1997) terms, these workers are likely to become the displaced, marginalised, 'disenchanted workers'.

But it's not all negative. From the workers' point of view, the introduction of CBT has meant that their skills are being recognised, often for the first time. Several informants commented on the difference this has made to these men in terms of self-confidence.

Safety Officer/Trainer	*They all obviously want to be at this certificate level. Everybody is now wanting attainment - 'I want to be there'. ' I've done this'. And 'I've done that'. You say, 'Hang on, hang on, you need to be able to substantiate that you are that level'. And you can see the enthusiasm of the fellows there... where in the old days they, when I do inductions and people write 'yes', and I say 'What do you do mate?' And he says, 'Oh, I'm just a labourer'. I say, 'You're not just a labourer mate, you're a skilled worker'. And you can see all the shoulders sorta straighten back out when you say it... And it is true they've got the skills that other people don't have and they're now actually um being recognised. But for their own self-esteem and that there you can obviously see a vast improvement and they want to have skills and they want to move on.* (Workplace Health & Safety Officer/Trainer)
Safety Officer/Trainer	*So that attitude we're trying to get out of the industry and replace it with that learning process that where everyone is benefiting because if we get our fellows at the bottom level benefiting the whole company as a whole benefits because we're all moving and more competitive and obviously we get a better job, better result, better all round product.* (Workplace Health & Safety Officer/Trainer)

Other perceptions in relation to CBT will be taken up in the next section. To summarise this section, it has been shown that this company does exhibit the dimensions of a learning organisation. It would appear from the interviews with personnel at several levels within the company that individual and group learning can move people toward a collective vision, in this case the development of a learning culture within the company. Further, it would appear that such a vision can lead to positive effects on organisational outcomes.

Discourses of literacy and numeracy and training

In addressing issues related to training, literacy, or lack of literacy, emerged during the interviews. The majority of informants appeared to view literacy and numeracy in terms of basic skills (reading, writing and

calculations) which would be required to complete certain tasks. For example, as the following quotation demonstrates, literacy and numeracy are seen as being an essential part of the job.

> *I've got a dogman's ticket and that was um, that was a lot of reading and um lot of maths (and) with the scaffolders' there'd be a lot um a lot of maths to work out formulas for you know, whatever.*
>
> (Leading Hand)

This autonomous view of literacy and numeracy is stated explicitly in the core competencies 'carry out interactive workplace communication' and 'carry out measurements and calculations'. There is also an assumption, which is evidenced in the following excerpt from an interview, that these basic skills will transfer to training at Level II, although the Training Coordinator appears to indicate that higher-order skills, or more specific literacies, are required for Level III.

> *Certainly Level III because Level II competency numeracy and literacy is still fairly low and people talk about Level II being a say a second, third year apprentice-type person who probably fills out time sheets and basic things like a time sheet and some safety checklists and things like that. When they get into Level III, the trades level they really have to start looking at quality documents and things like that and that's where we're really starting to find out where the problems are.*
>
> (Training Coordinator)

Although many of the informants view literacy and numeracy as basic skills essential for training, in many cases the examples given refer to social/workplace texts and practices. For example, as the Training Coordinator [Qld, NT, PNG] noted "*there's a lot of blokes who are very good at what they do, they* [just] *can't articulate that onto a piece of paper and that holds them back*". So, in order to engage workers in training on-the-job, specific attention has been given to the mode of delivery, and the production of training materials featuring highly contextualised literacies. The development process and allowance for workers with limited literacy skills are articulated by the Training Coordinator (Qld, NT, PNG) in the following extracts from his interview.

> *One of the things we did down on the Motorway was to get up A3 Tool Box talks. Well they're much more interactive, there's pictures and things like that. That was one of the things we did so that those people who did have problems with it, with literacy, could actually see it on a piece of paper.*
>
> (Project Training Manager)

> *I mean we've spent x amount of dollars developing all these training manuals, it's no good if 90% of the guys out there can't read and write is it, you've wasted your time and money. All the contractors put in x amount of dollars ah into the kitty to go away to* [XXX] *Training to do up the training manuals ah that addressed competencies within the training package. The first round were paper based, book based, now we're starting to get them on CD ROM...on overheads, all that sort of thing.*
>
> (Project Training Coordinator [Qld, NT, PNG])

It can been seen from this excerpt that not only is literacy related directly to the workplace practices, but the views expressed by the Training Coordinator [Qld, NT, PNG] also reflect the social/power relations within the company, in this case, core values related to cost effectiveness. Literacy is also seen to be a desirable skill in relation to workplace safety and assessment of risk. This issue was raised by more than one informant, but is best expressed in the following extracts from interviews.

> *Pre-Start Checks for equipment. A bloke gets on a dozer in the morning, he does his pre-start bla bla bla and away he goes. Now again if he has literacy problems, is he actually understanding what is supposed to be in there or is he ticking the box so it keeps him out of trouble?*
>
> (Project Training Coordinator [Qld, NT, PNG])

> *But I think when you delve deeper into it, more and more we ask people to fill out more forms because of safety and environmental legislation etcetera, etcetera and probably insurance as well, I think we'll really open up a can of worms.*
>
> (Training Coordinator)

So, literacy is now required in order to maintain the social order in the workplace and also to protect the company from litigation. The final comment from the Training Coordinator, cited above, sums up what a number of the informants felt. Added to the metaphor of 'a can of worms' were statements such as lack of literacy being 'an accepted evil' and 'it's frightening really'. Each represents particular views of literacy as being related to deviance (which needs to be controlled) or ignorance (which can be resolved through training). Until recently, no-one asked if a labourer could (or needed to) read and write,

> *I assume* [d] *that everyone that's my age or younger can read*
>
> (Leading Hand)

but

> *from the safety inductions we found that literacy levels* [of subcontractor workers] *...the problems of literacy levels were fairly high compared to our own workforce because we had picked our own workforce...with our employment procedure*
>
> (Training Coordinator)

While some informants do not believe that it is the role of the company to teach people to read and write, others accept that it is necessary for a productive, efficient, safe workforce. According to the Training Manager,

> [Literacy is] *definitely something that has to be addressed because it's the basis of what all this training is about, um some of the things too are becoming more technical. I think it* [literacy and numeracy] *should be rolled into a training package as an add on if you like so at the same time as they are doing this competency based training there's an extra in there for basic reading and writing to get them to a level where they understand, you know, the materials or the information that you're providing to them. How you go about that is a different matter.*
>
> (Project Training Coordinator [Qld, NT, PNG])

So, from the training manager's perspective, on one hand literacy and numeracy are constructed as autonomous skills which underpin training and should be taught in a 'front-on' mode for entry-level workers, but at the same time, he recognises the situatedness of learning and the need to use contextualised material. However, literacy is also about being able to participate successfully in what is considered 'workplace communication'. Along with the company focus on developing a training culture, there is also a strong emphasis on workplace communication as a means of ensuring that everyone working on a project is fully informed about the project, and each employee, from project manager to foreman, is encouraged to contribute to the discussion. Examples of this 'socialisation' into specific workplace practices are found in the following quotations.

> *Communication skills still remains a core basic requirement for a good outcome, and we've got things like work activity briefings, Job Safety Analysis that we do and we record or document those and more and more we're trying to thrust that responsibility back down to the, to the workforce, to the people that do and carry out the work... so there's a need for someone in that part of the organisation to actually have literacy and numeracy skills to be able to carry out that function.*
>
> (Systems Manager)

> *All of those* [WABs, JSAs] *are available in the crib rooms and things like that. But again you're making the assumption that people can understand what that says on paper.*
>
> (Project Training Coordinator (Qld, NT, PNG))

From this point of view, literacy is seen as an enabling skill, useful to maintain the social order of the workplace. For example, the engineer, when commenting on the need for good communication skills, appears to suggest that 'back down the workforce', this relates to having literacy and numeracy skills. Nevertheless, the bottom line is getting the job done right the first time, safely, thus reducing costs. Further, according to the engineer, "training will also enable you to have more skilled workers who can perform a variety of tasks and so reduce the level of workforce you might need". So, the move is towards having a core of multiskilled workers who transfer from project to project. These workers will build up situated expertise whilst at the same time be willing to engage in further training. Thus, to fulfill the goal of becoming a learning organisation, opportunities were provided for everyone who was motivated to participate in training. It was acknowledged that some older workers were not interested in gaining qualifications as they were close to retirement, but, if the younger ones did not accept the training culture, then their days with the company were numbered. The Safety Officer/Trainer gave the following two examples.

> *I know of three blokes on-site basically that do have a problem with literacy and numeracy. One of them just left yesterday; he wasn't really prepared to help himself so there's not much you could do about that.*
>
> (Safety Officer Trainer)

> *We had another Superintendent that came from an outside company and it just didn't work out. He didn't follow the* [company] *philosophy and wanted to do his own thing... so they decided that perhaps he wasn't the man for them. ...wasn't the company for him..*
>
> (Safety Officer Trainer)

Along with individuals being prepared to engage in learning, they were also expected to become 'socialised' into the company Discourse, "the ways of being in the [company]... which integrate words, acts, values, beliefs, attitudes, and social identities" (Gee 1996, p.127). Gee refers to this process as the 'acquisition principle' through which employees are exposed to or immersed in the company culture and value system. Thus,

employees are expected to develop their skills 'to be the best they can be in their role' and enhance the company's reputation for efficiency and cost-effectiveness.

8 Conclusion

This brief snapshot of one company indicates how work has become increasingly collaborative, with more coordination through information networks, thus ensuring greater accountability and quality control. At the same time, employees are encouraged to become multi-skilled, to keep up-to-date on new systems and new programs. In addition, this workplace is a site of changing management structures and work practices with the introduction of Frontline Management and Train the Trainer programs, all of which demand high degrees of worker collaboration, both to sustain those structures and to support the individual. For their part, the informants were generally enthusiastic about their role in achieving company objectives. They saw training as being of benefit to individuals, as well as the company as a whole, and it appeared that most were very willing to comply with, and even promote, company interests and values. Literacy, numeracy and good communication skills were seen as being fundamental to these processes.

It has been argued, that while literacy and numeracy are visible as basic skills within core competencies, they are also perceived to be essential underpinning skills for the performance of workplace tasks and training, the implications being that they should be 'built-in' to all training programs. At the same time, it is apparent that social literacies are required for successful engagement in work practices, including workplace communication meetings, so workers may need to be mentored into knowing and using the appropriate literacies. Further, it is contended that while certain literacies are critical to the maintenance of the social order within the workplace, others play an essential role in the socialisation of workers into those communities of practice and distributed literacy knowledge valued by members of this company's Discourse. It must be recognised that these essential literacies can only be acquired through enculturation or 'apprenticing' (Gee 1990) employees into the Discourse of the workplace. Training, both informal and formal, is at the heart of this process.

In the following section, we consider the findings that have been presented in this section, and draw out implications for both general as well as literacy and numeracy VET teachers and trainers involved in collaborating with companies who are implementing industry training packages.

9 Implications for teachers and trainers

The adoption of a training package paradigm has changed significantly the way that education and training is conceptualised, planned, delivered and assessed. More than ever before, teachers and trainers are being called upon to interpret sets of competencies and related performance criteria in ways that are, firstly, responsive to industry and workplace environments and, secondly, legislatively, financially and morally accountable. From our study of one learning organisation that is working within this paradigm, we offer the following implications for consideration by teachers and trainers.

1. It is imperative that there is an understanding of the Discourses that operate within the specific industries and sites in which teachers and trainers are operating.
2. In working with training packages, while it is important that teachers and trainers become familiar with their components, it is equally important that these endorsed competencies are seen as being situated within workplace practices. It is the competent performance of these practices that is foregrounded in training packages, not competence in relation to sets of abstract skills and understandings.
3. Similarly the knowledge, including literacy and numeracy knowledge, that underpins competencies, should be perceived as *embedded* within those competencies (Downs and Figgis 2000) and not as additions or prerequisites to the competencies.
4. The move for increased employee accountability has led to increased textualisation in the workplace. There is therefore a need for appropriate training so that *all* workers are competent in engaging in these new literate and numerate practices.
5. There is potential for the attributes of a learning organisation, as exemplified by the company case-studied in this report (as well as those identified by Watkins in her work), to be used as a model for other companies that also aim to become learning organisations.
6. The successful development of a learning culture within the workplace requires the implementation of effective and varied communication mechanisms (see Table 4) at all levels of the company operation. However, workers may need training in order to actively participate in these communication processes.

Note

1. While this report focuses mainly on the content provided by the interviewees and the ways that the content was organised (that is, Holstein & Gubrium's 1995 *whats* and *hows)*, we draw the readers' attention to conversational analytical work where the actions of the interviewer (Pomerantz & Zemel, in press), the therapist (Buttny 1990), the counsellor (Peräkylä 1995) and the psychiatrist (Bergmann 1992) are the focus of researchers' interests.

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Appendix A: Example of a training plan matrix

Training Plan for: ..... Qualification: .....

Competency No	Unit of Competence Descriptor	Training Activity	Time Frame	Target Method	Practice Activity	Time Frame
0000	Work Safely	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's First Aid Certificate	Ongoing	OJT, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Work Cooperatively With Others	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Solve Individual Work Problems	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Plan and Organise Individual Work	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Contribute to Quality Work Outcomes	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Apply Local Risk Control Processes	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Apply Mine Communications Systems	Inductions, Toolbox, Talks, Prestart Checks, Task Specific briefings, JSA's, WAB's	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Involvment in shift/crew activities	Commenced May 00/ Ongoing /Oct 01
0000	Apply Operational Maintenance Skills	Prestart checks of equipment, assisting maintenance persons in repairs and maintenance, Induction in Safe Work Procedures	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Servicing plant and equipment, prestart checks	Commenced May 00/ Ongoing /Oct 01
0000	Service Mine Plant and Equipment	Prestart checks of equipment, assisting maintenance persons in repairs and maintenance, Induction in Safe Work Procedures	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Servicing plant and equipment, prestart checks	Commenced May 00/ Ongoing /Oct 01
0000	Fit and Maintain Tyres and Wheels	Assist tyre fitters in the fitting and maintaining of tyres and wheels, understanding of maintenance schedules for tyres and wheels	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Maintaining tyres and wheels as part of equipment operation, routine operational servicing and minor maintenance	Commenced May 00/ Ongoing /Oct 01
0000	Operate Light Vehicle	Induction and validation of licence, prestart checks, routine servicing, minor maintenance	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Safety operation of light vehicle, Knowledge of vehicle systems	Commenced May 00/ Ongoing /Oct 01
0000	Operate Medium Vehicle	Induction, prestart checks, routine servicing, minor maintenance	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Safety operation of medium vehicle, Knowledge of vehicle systems	Commenced May 00/ Ongoing /Oct 01
0000	Conduct Bulk Material Operations	Induction, prestart checks, JSA's, WAB's haul coal and overburden, operations conform to mine plan	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Safe operation of haul truck conforming to mine plan and other operational parameters	Commenced May 00/ Ongoing /Oct 01
0000	Conduct Bulk Water Tank Operations	Induction, prestart checks, JSA's, WAB's distribute water, operations conform to mine plan	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Safe operation of water truck conforming to mine plan and other operational parameters	Commenced May 00/ Ongoing /Oct 01
0000	Conduct Dc-Watering Operations	Induction, JSA's, WAB's conform to mine plan, conformance to mine environmental plan	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Set up pumps, pump lines, minor maintenance of pumps and lines, conformance to line plans	Commenced May 00/ Ongoing /Oct 01
0000	Conduct Grader Operations	Induction, JSA's, WAB's conform to mine plan, conformance to mine environmental plan	Ongoing	OJT, RPL, job rotation, Inhouse Courses	Prepare and maintain haul roads, prepare pit ramps, reposition ancillary equipment, conform to mine and other operational parameters	Commenced May 00/ Ongoing /Oct 01

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Explosive Power Tools

WHO CAN USE AN E.P.T.?

- Only persons who have been trained as an explosive powered tool operator shall use the tools.

STORAGE AND USE

- It is a statutory requirement that all explosive cartridges be stored in a locked box in a secure area.
- Only load the tool at the worksite and immediately prior to use.
- Never fire on any readily shatterable surface, high tensile steel or any other unyielding substance.
- They must be cleaned every 100 shots and a log of maintenance must be kept.
- When an operator is firing into (or close to) wall, ceilings, floors, the areas above below, or alongside the worksite must be barricaded off.
- Never use the tool in the presence of an explosive or flammable gas, dust or vapour or compressed air and never use it where the charge can be rendered dangerous by the presence of heat.

Warning signs are to be placed at all access points.

Safety Glasses

Hearing Protection

Warning Signs

EXPLOSIVE CHARGE COLOUR CODE

BROWN	-	Minimum Strength
GREEN	-	Weak
	-	Medium
	-	Strong
RED	-	Very Strong
PURPLE	-	Especially Strong
BLACK	-	Maximum Strength

Record of maintenance

MISFIRE

- Do not remove tool from work surface for at least 10 seconds

MECHANICAL FAILURE

- Return to manufacturer for repair.

MINIMUM EDGE CLEARANCES

- Concrete and Masonry 75mm
- Steel 12mm

EPT

Approved _____ Date ____/____/____

Projects Manager

Appendix B: Explosive Power Tools poster

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Appendix C: A sample of the interview topics

POSSIBLE TOPICS FOR INTERVIEW WITH TRAINING COORDINATOR FOR QLD, NT & PNG

Learning opportunities for workers at a range of levels in the civil construction division of this company

- Brief personal history of trainer role
- Changes to the industry and resultant needs of employees
- Learning opportunities provided by the company
- Recent learning opportunities
- Assessment program that has been implemented
- Envisaged learning opportunities for workers
- Problems related to learning/communications within the enterprise
- Ways that these problems are being addressed

Appendix D: Evidence map

Unit: MNC.014.A **CONDUCT BULK MATERIAL TRUCK OPERATIONS**

Descriptor: This unit covers the haulage of bulk material using trucks (other than those commercial vehicles in the General package).

	Performance Criteria
014.1.1	Work requirements in the form of shift briefings, handover details or work orders are obtained, interpreted and clarified / confirmed before proceeding.
014.1.2	Geological and survey data required to complete the allocated work is accessed, interpreted and applied in accordance with site procedures.
014.1.3	Safety information and procedures are accessed and applied throughout the work.
014.2.1	Coordination activities are resolved with others at the site prior to commencement of, and during, the work activity.
014.2.2	Pre-start, startup, park-up and shutdown procedures are carried out in accordance with the manufacturer's instructions and site procedures.
014.2.3	Truck controls are operated in accordance with manufacturer's and site procedures.
014.2.4	Truck is operated within vehicle limitations as specified by the manufacturer's instructions and site procedures.
014.2.5	Monitoring systems and alarms are acted or reported in accordance with manufacturer's instructions and site procedures.
014.2.6	Hazardous and emergency situations are recognised and responded to in accordance with manufacturer's instructions and site procedures.
014.2.7	Records are maintained in accordance with site requirements.
014.4.1	Truck inspections and faultfinding are carried out in accordance with manufacturer's instructions and site requirements.
014.4.2	Routine operational servicing, lubrication and housekeeping tasks are carried out in accordance with manufacturer's instructions and site authorised procedures and practices.
014.4.3	Minor maintenance is carried out to manufacturer's instructions and site requirements.
014.4.4	Operator support is provided during preparation for, and conduct of, major maintenance tasks in accordance with site requirements.
014.4.5	Records are processed in accordance with site requirements.

Item	Comments	Validation
Prestart Briefing Proforma • used by foremen: • space at foot for comments • verified by work carried out NB: No comment means person completed tasks (Sheet not kept for long)	Example to be used to demonstrate the instrument used and the process.	• Shift sheets (ticked) • Attendance accounted for by supervisor at briefing
Tool Box Talks • concentrates on specifics • kept as record for long time • records attendances	Materials kept in file	• attendance records personally signed
Task Specific Briefings Eg: Highwall briefings for Groups of key operators (as required - nil records)		Nil records (entries sometimes made in supervisors shift diary) Local knowledge
One-on-One Briefings • task specific • (as required - nil records kept)		Nil records - evidence as local knowledge
Model Dev Modules - Materials • learning materials • presentations • usual student attendance records		• Professional Dev materials • Attendance records • Test results
Induction / WAB's / JSA's • prepared materials	Materials kept on file.	• Attendance records • Signatures required
NB: Validation is also maintained through the use of the Logbooks, HRIS or similar records. Evidence of compliance may rely on the accepted methods of observations, third party reports, oral questioning and completion of assigned work / projects		

Item	Comments	Validation
Tests / Questionnaires • varied question types • covers theory underpinning knowledge • Signature - validation blocks Check sheet • Proformas for collecting evidence based on observations • Signature - validation blocks	Test and check sheet retained on personal files. Log books completed. Manager approvals to operate on Mine site under general supervision	Completed and signed Test and Check sheets Log Books signed by Assessor, Manager and Employee HRIS

Item	Comments	Validation
Legislation / Procedures • Inspection rules & schemes	Inspection reports forms (103's etc)	Fitters reports / maint records
Reports to Maint Dept	Verbal / Written	Fitters reports if raised

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